



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**



# SDR

## Summary

Service Difficulty Reporting

March 29, 1998 - April 4, 1998

GENERAL AVIATION, ZAC-327

*You can improve Air Safety by reporting the problem when you see it!*

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### SECTION

- I Significant Occurrence Report
- II Domestic Service Difficulty Report
- III International Service Difficulty Report
- IV SDR Totals by District Office
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ISSUE: 98-14



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# **SDR SUMMARY**

General Aviation, ZAC-327



This summary includes domestic (United States) Service Difficulty Reports (SDRs) entered into the data base for aircraft weighing 12,500 lbs. and below. It also includes reports on aeronautical products (engines, propellers, and components), and all helicopters. A separate section for International SDRs for aircraft weighing 12,500 lbs. and under has also been included. Under a data exchange agreement, International SDRs are submitted to the FAA by the Civil Aviation Authority of other countries (currently, Canada - CAN, and Australia - AUS). All reports are sorted by aircraft make, model group (basic model), and Joint Aircraft System/Component (JASC) code. Within each aircraft model group, the specific model shown may vary, but similar types of reports will be grouped together and listed in ascending order by their JASC code. Each field contains all information submitted to the FAA. Some fields are not included in order to make the summary easier to read. Additional information may be obtained by referring to the "operator control number." Send your request to the Aviation Data Systems Branch, AFS-620 at the address or phone below.

The Regulatory Support Division (AFS-600) has established a "HomePage" on the Internet through which the same information is available. There is a large quantity of other information available through the AFS-600 HomePage such as the most current SDR system codes (i.e., Joint Aircraft System/Component Codes). The SDR Question and Answer Section of the Summary will also be transferred to the AFS-600 HomePage to simplify the process of preparing the SDR Summaries in the PDF format each week. There are "hot buttons" to take you to other locations and sites where FAA Flight Standards Service Information is available. The AFS-600 "HomePage" address is:

**<http://www.mmac.jccbi.gov/afs/afs600>**

**"The Service Difficulty Reports in this publication are derived from unverified information submitted by the aviation community without FAA verification for accuracy. The number of SDRs submitted is not an indication of the mechanical reliability or fitness of an airline or individual operator, and the information should not be used as such."**

Comments are welcomed and may be directed to:

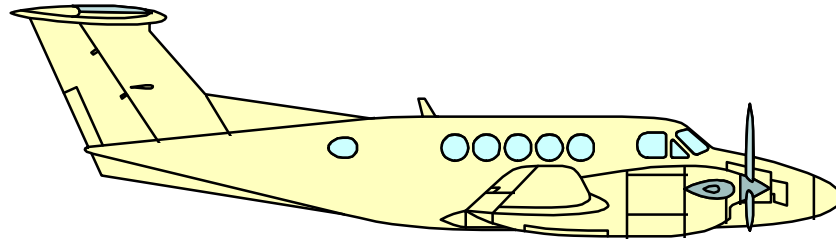
*Federal Aviation Administration  
Aviation Data Systems Branch, AFS-620  
P.O. Box 25082  
Oklahoma City, OK 73125-5029  
Phone: (405) 954-4171, Fax: (405) 954-4748*

Your continued participation is essential and is an integral part of ensuring aviation safety. Thank you for supporting the Service Difficulty Program! If you have any questions regarding this special notice you can contact John Jackson at (405) 954-6486, or Jim Gillespie at (405) 954-1141, or Blake McDonald at (405) 954-0307 in the Aviation Systems Branch (AFS-620). Their E-mail addresses are:

**[john\\_e\\_jackson@mmacmail.jccbi.gov](mailto:john_e_jackson@mmacmail.jccbi.gov)**

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# **SIGNIFICANT OCCURRENCE REPORT**





U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

## **THE SIGNIFICANT OCCURRENCE REPORT**



The Significant Occurrence Report is a compilation all of the star bordered reports that appear in the General Aviation Service Difficulty Report (SDR) Summary, ZAC-327. The Significant Occurrence Report is used to highlight industry problem areas to field inspectors and the aviation public.

Limited analysis is performed by the Aviation Data Systems Branch, AFS-620 during the preparation of the "Significant Occurrence Report", which is generated each week and is included in the front of the Air Carrier SDR Summary. Significant Reports are hand selected by AFS-620's inspectors based on the individual merit of each report. The criteria for selection includes, but is not limited to, items that indicate high failure rates; items related to accidents or incidents; or design or maintenance failures which may affect the safe operation of the aircraft.

In some cases, this limited analysis of SDR data leads to the preparation of information bulletins which are routed to the appropriate product certification office for further investigation of the problem. The end result may be the issuance of an airworthiness directive (AD) by the Aircraft Certification Service (AIR) if warranted.

The Significant Occurrence Report (section I) of the weekly SDR Summary is not intended to be a summary of all significant events and should not be used as such. We recommend that you review further the applicable sections of the SDR summary that may be of interest.

# GENERAL AVIATION SIGNIFICANT OCCURRENCE REPORT

3/29/98 - 4/4/98 ISSUE: 98-14 ZAC-327

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
7240 YRRD	66804 BE82	BEECH B100	GARRTT TPE3316252B			COMBUSTION CASE 8939735	FAILED LT ENG PLENUM	3/10/98	98ZZZX1246
*****	DURING T/O, PILOT HEARD A 'POOF' SOUND. NOTICED THE COWLING PAINT DISCOLORED AND THE OIL FILLER DOOR OPEN. TAKEOFF ABORTED, AND ENG EMERG SHUTDOWN. INVEST DETERMINED THE LT ENG COMBUSTION CASE (PLENUM) HAD FAILED. ENG REMOVED FOR REPAIR, ENG COMPARTMENT DAMAGE REPAIRED. ENG DISASSEMBLED FOR INSPECT AND IT APPEARED THE PLENUM HAD FAILED AT/AROUND THE P-3 FITTING BOSS. ENG MFG CONTACTED TO ESTABLISH IF THE PLENUM WAS AN ORIGINAL COMPONENT FOR THE ENG. MFG REPLIED PLENUM P/N AND S/N WERE NOT IN THE FACILITIES DATA BASE, AND A NON-MFG REPAIR CODE WAS EVIDENT. SUBMITTER RECOMMENDED TO PREVENT RECURRENCE, INSPECT P-3 FITTING BOSS/CUSTOMER AIR PAD AREA OF THE COMBUSTION CASE (PLENUM) CLOSELY AT INSPECTIONS.								
2822 ULXR	212LA 3957	BELL 206B3				DOUBLER	CORRODED BOOST PUMP MT	2/2/98	98ZZZX1266
*****	FUEL BOOST PUMP MOUNTING FLANGE BECAME DEBONDED ALLOWING THE BOOST PUMPS TO FLEX WITH THE FUEL CELL. REMOVAL OF THE FUEL CELL REVEALED EXTENSIVE CORROSION OF THE ALUMINUM MOUNTING FLANGE. SUBMITTER SUGGESTED A POSSIBLE CAUSE OF FAILURE WAS MOISTURE TRAPPED BETWEEN THE FUEL CELL AND MOUNTING FLANGE AND POSSIBLY INSUFFICIENT ADHESIVE USED TO BOND THE FLANGE TO THE FUSELAGE IN THE FUEL CELL CAVITY.								
3230		GULSTM 690A			AEROC 540084501	ROLL PIN	SHEARED GEAR HANDLE	5521	10/11/96 CA961112013
*****	(CAN) LANDING GEAR FAILED TO EXTEND ON APPROACH, LANDING GEAR HANDLE MOVED BUT HYDRAULIC VALVE LEVER DID NOT MOVE. LANDING GEAR EXTENDED WHEN HYDRAULIC VALVE WAS OPERATED IN THE MANUAL MODE. MAINTENANCE INVESTIGATION REVEALED THE ROLL PIN OF THE LANDING GEAR CONTROL ASSEMBLY WAS NOT CORRECTLY INSTALLED WHICH CAUSED IT TO SHEAR.								
3340	47839 28R7837006	PIPER PA28R201				POTENTIOMETER 6743604	SHORTED NAV LIGHTS	2/1/98	98ZZZX1242
*****	CUSTOMER RENTED AIRCRAFT AND EXPERIENCED SMOKE IN COCKPIT. TROUBLESHOT AND FOUND TERMINAL LUG ON POTENTIOMETER HAD CHAFED THROUGH HOT LEAD AND CAUSED DIRECT SHORT. INSULATED TERMINAL LUGS WITH SHRINK TUBE.								
2730	12SU 0102	SUKHOI SU26M				IDLER SUPPORT	CRACKED ELEV CONTROL	3/2/98	98ZZZX1244
*****	PILOT OWNER REPORTS SNAP ROLLS WERE NOT CRISP. UPON INSPECTION OF ELEVATOR CONTROL SYSTEM, THE ELEVATOR IDLER SUPPORT MEMBER WAS FOUND CRACKED IN HALF AT THE FACTORY WELDMENT. THE SU26M SUKHOI IS CAPABLE OF UNLIMITED AEROBATICS, AND IT IS NOT UNCOMMON TO SEE +/- 10G ON THE METERS. SUBMITTER SUGGESTED CAUSE OF THIS FAILURE AS THE HIGH G-LOADNG ON PILOT'S SEATBACK AGAINST THE MEMBER DURING HIGH POSITIVE G-MANEUVERS.								

(End of GENERAL AVIATION SIGNIFICANT OCCURRENCE REPORT)

**FEDERAL AVIATION ADMINISTRATION**  
**SIGNIFICANT OCCURRENCE REPORT INDEX**

Showing Specific Part Numbers and Aircraft Model by Year

FOR THE PERIOD OF: 3/29/98 To 4/4/98

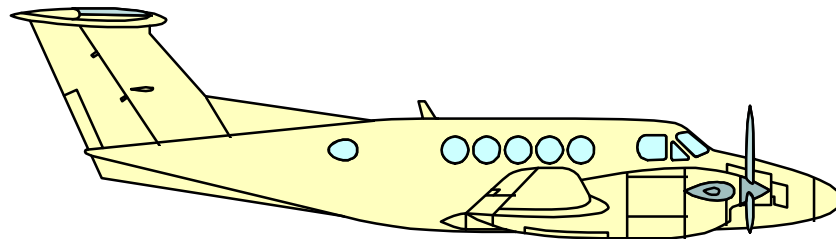
<u>PART NUMBER</u>			<u>YEAR</u>											
<u>PART NAME</u>	<u>ACFT MODEL</u>	<u>TOTAL</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>
<b>2602540</b>														
BOLT	7373A4	1	-	-	-	-	-	-	-	-	-	-	1	-
	7373T0	1	-	-	-	-	-	-	-	-	-	-	-	1
	737524	1	-	-	-	-	-	-	-	-	-	-	-	1
TIE BOLT	737*	1	-	-	-	-	-	-	-	-	-	-	1	-
	7373A4	1	-	-	-	-	-	-	-	-	-	-	1	-
<b>TOTAL of # 2602540</b> - - - - -		<b>5</b>	-	-	-	-	-	-	-	-	-	-	3	2
<b>2770066001</b>														
PLUNGER	SA227DC	1	-	-	-	-	-	-	-	-	-	-	-	1
<b>TOTAL of # 2770066001</b> - - - - -		<b>1</b>	-	-	-	-	-	-	-	-	-	-	-	1
<b>329B7A</b>														
FLIGHT DIRECTOR	SA226AT	1	-	-	-	-	-	-	-	-	-	-	-	1
GYRO HORIZON	SA226AT	1	-	-	-	-	-	-	-	-	-	-	-	1
<b>TOTAL of # 329B7A</b> - - - - -		<b>2</b>	-	-	-	-	-	-	-	-	-	-	-	2
<b>6743604</b>														
POTENTIOMETER	PA28R201	1	-	-	-	-	-	-	-	-	-	-	-	1
<b>TOTAL of # 6743604</b> - - - - -		<b>1</b>	-	-	-	-	-	-	-	-	-	-	-	1
<b>762811</b>														
SWITCH	650	2	-	-	-	-	1	-	-	-	-	-	-	1
<b>TOTAL of # 762811</b> - - - - -		<b>2</b>	-	-	-	-	1	-	-	-	-	-	-	1
<b>848</b>														
BEARING	SA227DC	1	-	-	-	-	-	-	-	-	-	-	-	1
<b>TOTAL of # 848</b> - - - - -		<b>1</b>	-	-	-	-	-	-	-	-	-	-	-	1
<b>8939735</b>														
COMBUSTION CASE	B100	1	-	-	-	-	-	-	-	-	-	-	-	1

**FAA SIGNIFICANT OCCURRENCE REPORT INDEX 3/29/98 To 4/4/98 (cont'd)**

<b><u>PART NUMBER</u></b>		<b><u>YEAR</u></b>												
<b><u>PART NAME</u></b>	<b><u>ACFT MODEL</u></b>	<b><u>TOTAL</u></b>	<b><u>1987</u></b>	<b><u>1988</u></b>	<b><u>1989</u></b>	<b><u>1990</u></b>	<b><u>1991</u></b>	<b><u>1992</u></b>	<b><u>1993</u></b>	<b><u>1994</u></b>	<b><u>1995</u></b>	<b><u>1996</u></b>	<b><u>1997</u></b>	<b><u>1998</u></b>
8939735														
PLENUM	MU2B26A	1	-	-	-	1	-	-	-	-	-	-	-	-
TOTAL of # 8939735 -----		2	-	-	-	1	-	-	-	-	-	-	-	1
TOTAL for ALL (13) PART NUMBERS: ----		14	-	-	-	1	1	-	-	-	-	-	3	9
END OF SIGNIFICANT OCCURRENCE REPORT INDEX														



# **DOMESTIC SERVICE DIFFICULTY REPORT**





**DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - AIRCRAFT****3/29/98 - 4/4/98    ISSUE: 98-14    ZAC-327**

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
2140 IYOR	1566P CE1294	BEECH F33A				SHAFT 3555011523	FAILED HEAT/VENT VALVE		2/6/98 98ZZZX1243
UPON INSTALLING VALVE ASSY ON THE A/C HEAT VENT, THE ARM PORTION OF THE SHAFT ASSY BROKE OFF. INVESTIGATION FOUND THE WELD AT THE BOTTOM OF THE ARM POSITION MISSING WHEN COMPARED TO THE ORIGINAL ASSY. THE TOP PORTION APPEARED TO HAVE BEEN WELDED AND GROUND DOWN WITH LITTLE OR NO PENETRATION OF THE WELD. THIS WAS 1 OF 4 UNITS BOUGHT AS SPARES, ALL WITH THE SAME PROBLEM. THE MANUFACTURE DATES WERE ALL JUNE 29, 1997 AND INSPECTED BY 870.									
3213	101DF 3120Q0828	CESSNA 310Q				BEARING 51411091	WORN RT MLG STRUT	2285	2/20/98 98ZZZX1241
REMOVED RMLG STRUT TO REPAIR LEAKING SEALS. FOUND INNER BEARING, WHICH HAD BEEN REPLACED IN C/W AD 90-02-13, WORN APPROXIMATELY .037 INCH. BRASS SHAVINGS MAY HAVE CAUSED SEALS TO FAIL.									
3340	47839 28R7837006	PIPER PA28R201				POTENTIOMETER 6743604	SHORTED NAV LIGHTS		2/1/98 98ZZZX1242
*****	CUSTOMER RENTED AIRCRAFT AND EXPERIENCED SMOKE IN COCKPIT. TROUBLESHOT AND FOUND TERMINAL LUG ON POTENTIOMETER HAD CHAFED THROUGH HOT LEAD AND CAUSED DIRECT SHORT. INSULATED TERMINAL LUGS WITH SHRINK TUBE.								
2730	12SU 0102	SUKHOI SU26M				IDLER SUPPORT	CRACKED ELEV CONTROL		3/2/98 98ZZZX1244
*****	PILOT OWNER REPORTS SNAP ROLLS WERE NOT CRISP. UPON INSPECTION OF ELEVATOR CONTROL SYSTEM, THE ELEVATOR IDLER SUPPORT MEMBER WAS FOUND CRACKED IN HALF AT THE FACTORY WELDMENT. THE SU26M SUKHOI IS CAPABLE OF UNLIMITED AEROBATICS, AND IT IS NOT UNCOMMON TO SEE +/- 10G ON THE METERS. SUBMITTER SUGGESTED CAUSE OF THIS FAILURE AS THE HIGH G-LOADNG ON PILOT'S SEATBACK AGAINST THE MEMBER DURING HIGH POSITIVE G-MANEUVERS.								
(End of DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - AIRCRAFT)									

**DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS****3/29/98 - 4/4/98    ISSUE: 98-14    ZAC-327**

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
6220 ALGR	5775H 5025	AEROSP AS355F1				STARFLEX 350A31190703	CRACKED M/R HEAD		1/15/98 98ZZZX1256
DISCOVERED DURING DAILY INSPECTION, FOUND 2 EACH STARFLEX ARMS SPLINTERED.									
6322 ALGR	5773X 5004	AEROSP AS355F			355A34010800	STATOR VT1604012	CRACKED COOLER BLOWER	3946 1505	1/23/98 98ZZZX1255
DURING PHASE INSPECTION, FOUND OIL COOLER BLOWER STATOR MOUNTING POINTS CRACKED.									
6520 HEEA		AEROSP AS355F1			350A33020005	GEARBOX 350A33109100	NOISY T/R		3/19/98 HEEA0013498
GEARBOX WAS OVERHAULED AND NEW GEARS WERE INSTALLED. STATIC PATTERNS ON GEARS MATCHED TESTER SHEET AS REQUIRED. AFTER A FLIGHT OF 15 MINUTES CREW HEARD A HIGH PITCH NOISE FROM GEARBOX. GEARBOX WAS DIASSEMBLED AND COULD NOT FIND ANY DISCREPANCIES. NOTICED THAT PINION GEAR HAD A ZF SERIAL NUMBER AND BEVEL GEAR HAD A M AS A PREFIX WHICH IS UNCOMMON, PLEASE EVALUATE.									
2312 HEEA	2278V 3632	BELL 206B3				TRANSCIEVER 064105430	FAILED COCKPIT		3/23/98 HEEA0013511
24 MONTH INSPECTION DUE. PERFORMED PRELIMINARY INSPECTION AND TESTED UNIT. FOUND DISPLAY NOT DIMMING. SWAPPED OUT DS901 DISPLAY AND V901 PHOTOCCELL. NO HELP. FOUND I509 INTEGRATED CIRCUIT (SURFACE MOUNT) BAD.									
2436 HEEA	6251V 51404	BELL 206L3				VOLT REGULATOR 206075447007	FAILED DC SYS		3/26/98 HEEA0013537
VOLTAGE REGULATOR FAILED. GEN DROPS OFF LINE.									
2436 HEEA	210PH 51541	BELL 206L3				VOLT REGULATOR 206075447007	FAILED DC SYS		3/26/98 HEEA0013542
GENERATOR SLOW TO COME ON LINE.									
2822 ULXR	212LA 3957	BELL 206B3				DOUBLER	CORRODED BOOST PUMP MT		2/2/98 98ZZZX1266
*****	FUEL BOOST PUMP MOUNTING FLANGE BECAME DEBONDED ALLOWING THE BOOST PUMPS TO FLEX WITH THE FUEL CELL. REMOVAL OF THE FUEL CELL REVEALED EXTENSIVE CORROSION OF THE ALUMINUM MOUNTING FLANGE. SUBMITTER SUGGESTED A POSSIBLE CAUSE OF FAILURE WAS MOISTURE TRAPPED BETWEEN THE FUEL CELL AND MOUNTING FLANGE AND POSSIBLY INSUFFICIENT ADHESIVE USED TO BOND THE FLANGE TO THE FUSELAGE IN THE FUEL CELL CAVITY.								
2840 HEEA	3892R 45594	BELL 206L1				INDICATOR 206075186005	ERRATIC COCKPIT		3/18/98 HEEA0013413
INDICATOR LOAD SIDE ERRATIC AND HAS FRICTION.									
2840 HEEA	8590X 51494	BELL 206L3				PROBE 206064636103	FAILED FUEL SYS		3/18/98 HEEA0013436
PROBE FLUCTUATES.									
2841 HEEA	22751 3627	BELL 206B3				INDICATOR 206075189101	ERROR FUEL QTY		3/26/98 HEEA0013563
EXCESSIVE FRICTION ERROR.									
2842 HEEA	8590X 51494	BELL 206L3				TRANSMITTER 206364601101	FAILED FUEL SYS		3/18/98 HEEA0013435
TRANSMITTER FLUCTUATES.									

\*\*\*\*\* DENOTES SIGNIFICANT OCCURRENCE

## DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS (cont'd)

3/29/98 To 4/4/98 ISSUE: 98-14 ZAC-327

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
3340 HEEA	2145C 3456	BELL 206B3				POWER SUPPLY A490ATSDF1428	INTERMITTENT STROBE		3/18/98 HEEA0013427
	POWER SUPPLY INTERMITTENT.								
3340 HEEA	5006F 45181	BELL 206L1				POWER SUPPLY A490ATSDF1428	FAILED STROBE		3/19/98 HEEA0013472
	STROBE POWER SUPPLY INOPERATIVE.								
3416 HEEA	8588X 51486	BELL 206L3				ALTIMETER 5934D1	ERRORS COCKPIT		3/26/98 HEEA0013536
	ALTIMETER HAS EXCESSIVE FRICTION ERROR.								
5310 HEEA	5007Y 45192	BELL 206L1				PANEL ASSY 206033099181	MIS MFG FUSELAGE		3/19/98 HEEA0013496
	INSERTS FOR FUEL CROSSOVER MISLOCATED FROM BELL.								
5530 HEEA		BELL 206L1				FIN ASSY 206020113163	DAMAGED VERT FIN		3/18/98 HEEA0013451
	INSPECTED FIN, FOUND DAMAGE IN AREA WHERE NO STRUCTURAL DAMAGE ALLOWED TO VERTICAL FIN STRUCTURE AS PER BHT-206-SRM-1 SECTION 6-3-9. SCRATCH 2 3/4" LONG DEPTH .001-.004. STINGER HOLE OVERSIZED.								
6230 ZV1R	5000G 45163	BELL 206L1				DRIVE LINK 206010336005	WORN M/R		1/21/98 98ZZZX1265
	INSPECTION FOUND DRIVE LINK ASSY WITH EXCESSIVE PLAY AT TWO PLACES. SEE BELL MM L-3 FIG 62-21. ON TEAR DOWN, FOUND BEARINGS AND SPACERS WORN BEYOND LIMITS. TOTAL TIME OF PARTS, LESS THAN 1,000 HRS/1 YEAR SINCE REPLACEMENT.								
6230 ZV1R	2654 45482	BELL 206L1				DRIVE LINK 206010336005	WORN M/R		1/21/98 98ZZZX1264
	INSPECTION FOUND DRIVE LINK ASSY WITH EXCESSIVE PLAY AT TWO PLACES. SEE BELL MM L-3 FIG 62-21. ON TEAR DOWN, FOUND BEARINGS AND SPACERS WORN BEYOND LIMITS. TOTAL TIME OF PARTS, LESS THAN 1,000 HRS/1 YEAR SINCE REPLACEMENT.								
6240 HEEA	31801 51074	BELL 206L3				TACH GENERATOR 206076373001	MALFUNCTION N2 ROTOR		3/26/98 HEEA0013555
	N2 ROTOR NEEDLE BOUNCES.								
6320 ALGR		BELL 206L1			206040004101	PACKING L15231487	LEAKING QUILL		1/30/98 98ZZZX1260
	AFTER ASSEMBLY OF TRANSMISSION AFTER 4,500 HOUR OVERHAUL AT PRESSURE CHECK, FOUND THE L-1523-1487 O-RING PACKING CHANGED APPROX 4 TIMES TO STOP THE INPUT QUILL FROM LEAKING. UPON EXAMINATION OF SEVERAL NEW PACKINGS, FOUND SOME PACKING APPROX 0.022 INCH THICKER THAN THE PACKING THAT LEAKED. INSTALLED THE THICKER PACKING, THE LEAK STOPPED. SUBMITTER STATED HAVE HAD THIS PROBLEM WITH 3 OTHER TRANSMISSIONS. WHEN USING THE THICKER PACKING, THE LEAK STOPS.								
6320 ZV1R	2621 45400	BELL 206L1			206040004101	SUN GEAR 206040562101	WORN TRANSMISSION	3009 2844	1/5/98 98ZZZX1271
	SUN GEAR AND GEARSHAFT WORN BEYOND LIMITS. TIME SINCE INSPECTED AND REPACKED, 1,379.4 HOURS. TT: 3,008.8 HOURS. SUBMITTER STATED REPACKED 4-27-91. GREASE OVER 6 YEARS OLD. SUGGEST PUTTING CALENDER TIME LIMIT ON SUN GEAR INSPECTION AND REPACK OF 3 YEARS OR 1,500 HOURS WHICHEVER COMES FIRST.								
6710 HEEA	2145C 3456	BELL 206B3				ACTUATOR 206062721113	FAILED M/R		3/18/98 HEEA0013425
	ACTUATOR MOTOR DOES NOT FUNCTION.								

\*\*\*\*\* DENOTES SIGNIFICANT OCCURRENCE

## DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS (cont'd)

3/29/98 To 4/4/98 ISSUE: 98-14 ZAC-327

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6710 HEEA	2285B 3642	BELL 206B3				ACTUATOR 206062721113	FAILED DROOP COMP		3/19/98 HEEA0013494
ACTUATOR STICKS AND INTERMITTENT.									
6710 HEEA	8588X 51486	BELL 206L3				ACTUATOR 206062721109	DEFECTIVE M/R		3/19/98 HEEA0013500
UNABLE TO ADJUST STROKE TO PROPER SETTINGS.									
6710 HEEA	8590X 51494	BELL 206L3				ACTUATOR 206062721109	FAILED M/R		3/19/98 HEEA0013456
ACTUATOR WORKS INTERMITTENTLY.									
6730 HEEA	1078D 45397	BELL 206L1				CYLINDER 206076062003	LEAKING CYCLIC	14890	3/26/98 HEEA0013543
SERVO LEAKING AND BOOT TORN.									
7200 HEEA	3207Q 51540	BELL 206L3	ALLSN 250C30P			ENGINE	MALFUNCTION POWER RPM	5348 126	4/8/97 98ZZZX1268
PILOT REPORTED THAT AIRCRAFT YAWED IN CRUISE FLIGHT AND THE ROTOR RPM DROPPED AND RECOVERED TO 96 PERCENT. RETURNED TO OFFSHORE PLATFORM WITH 96 PERCENT ROTOR RPM. AFTER LANDING AND EXERCISING COLLECTIVE, THE ROTOR RPM RETURNED TO 100 PERCENT. MAINTENANCE C/W A PRESSURE AND VACUUM FUEL SYSTEM CHECK. COULD NOT FIND ANY PROBLEMS. REPLACED FUEL CONTROL, GOVERNOR, AND FUEL NOZZLE FOR PRECAUTION.									
7210 ALGR		BELL 206L4	ALLSN 250C30P		23053349	GARLOCK SEAL 406340104101	LEAKING PTO FWD SEAL		11/7/97 98ZZZX1274
NEW PTO SEALS INSTALLED IN REPAIRED GEARBOX ON 9-23-97. ENGINE WAS ASSEMBLED AND TESTED ON 11-07-97. DURING TEST RUN, FOUND FORWARD PTO SEAL LEAKING. NEW PTO SEALS ARE LARGER IN DIAMETER THAN (RED) PTO SEALS PN 524919. UPON INSTALLATION, SEALS ARE EXTREMELY TIGHT CAUSING SEALS TO BOW AND CAUSE LEAKAGE.									
7250 HEEA	513EH 45421	BELL 206L1	ALLSN 250C28B		23033185	NOZZLE 23008054	CRACKED NR 1		3/23/98 HEEA0013508
ENGINE REMOVED DUE TO OIL BLOWING OUT OF COMP. DISCHARGE. TURBINE DISASSEMBLED DUE TO LOW POWER ON TEST CELL. UPON INSPECTION OF TURBINE PARTS NOTED: CRACKED BEYOND SERVICEABLE LIMITS ON NR1 NOZZLE VANES, OUTERBAND AND KEYWELDS.									
7314 HEEA	42EA 51542	BELL 206L3				FUEL PUMP 3881005	WORN ENG FUEL	5377	3/19/98 HEEA0013502
FUEL PUMP HAS WORN SPLINES.									
7712 HEEA	22751 3627	BELL 206B3				TORQUEMETER 206075739107	MALFUNCTION ENGINE		3/26/98 HEEA0013562
SLUGGISH OPERATION AND FLUID IN GLASS.									
7712 HEEA	2285B 3642	BELL 206B3				TORQUE GAUGE 206075185001	FAILED ENG TORQUE		3/19/98 HEEA0013480
TORQUE GAUGE EXCESSIVE FRICTION ERROR.									
7712 HEEA	31801 51074	BELL 206L3				TORQUEMETER 206075739103	STICKS ENGINE		3/19/98 HEEA0013481
TORQUEMETER NEEDLE STICKS AT 6%.									

\*\*\*\*\* DENOTES SIGNIFICANT OCCURRENCE

## DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS (cont'd)

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ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
7712 HEEA	8588X 51486	BELL 206L3				TORQUEMETER 206075739103	FAILED ENG TORQUE		3/19/98 HEEA0013504
TORQUE GAUGE FOR ENGINE FILLS UP WITH OIL WHEN ENGINE IS RUNNING. SEE OIL IN SIGHT GLASS FACE AND LEAKS ON PANEL.									
7714 HEEA	5007Q 45187	BELL 206L1				INDICATOR 206070266001	STICKS GAS PRODUCER		3/26/98 HEEA0013567
GAS PRODUCER NEEDLE STICKS AT START.									
7714 HEEA	50182 45242	BELL 206L1				INDICATOR 206070266009	FAILED COCKPIT		3/19/98 HEEA0013478
INDICATOR WILL NOT INDICATE.									
7714 HEEA	6603X 51412	BELL 206L3				GAGE 206075682107	ERRATIC GAS PRODUCER		3/19/98 HEEA0013477
GAS PRODUCER GAGE SMALL NEEDLE IS ERRATIC.									
7720 HEEA	22751 3627	BELL 206B3				GAGE 206075682001	DEFECTIVE GAS PROD		3/26/98 HEEA0013561
GP GAGE NEEDLE STICKS AND PARTICLES INSIDE GLASS.									
7931 HEEA	8588X 51486	BELL 206L3				INDICATOR 206075677103	LEAKING ENG OIL		3/18/98 HEEA0013412
LEAKING OIL AT FACE. PRESSURE SIDE HIGH OUT OF TOLERANCE.									
2800 HEEA	102PH 30899	BELL 212			209062502101	PACKING MS29561210	LEAKS OIL COOLER	297	3/26/98 HEEA0013526
OIL LEAKAGE CAUSED BY FAILURE OF O-RING. O-RING HAS BECOME BRITTLE AND BROKEN. THE LEAKAGE IS BEING REPORTED AT APPROXIMATELY 2 QTS. REPLACED O-RING AND RETURNED TO SERVICE.									
3422 HEEA	5736J 31140	BELL 212				TRANSMITTER 2594484	ERRATIC FLUX VALVE		3/19/98 HEEA0013484
FLUX VALVE HAS ERRATIC READINGS.									
3425 HEEA	5736J 31140	BELL 212				COMPENSATOR 656767	FAILED COCKPIT HSI		3/19/98 HEEA0013490
COMPENSATOR WILL NOT ADJUST.									
7931 HEEA	3208H 31304	BELL 212				TRANSMITTER APTE138150G	FAILED ENG OIL	4461	3/19/98 HEEA0013474
TRANSMITS LOW OUT OF TOLERANCE.									
2121 HEEA	8045T 28101	BELL 214ST				BLOWER 214073917101	FAILED AIR DIST		3/26/98 HEEA0013554
BLOWER POPS CIRCUIT BREAKER.									
2200 HEEA	5748M 28102	BELL 214ST				SENSOR DUALRATE 214074104101	FAILED SCAS SYS		3/19/98 HEEA0013460
KICKS SCAS PITCH OFF.									

\*\*\*\*\* DENOTES SIGNIFICANT OCCURRENCE

## DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS (cont'd)

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2211 HEEA	59806 28140	BELL 214ST			FZ702	COMPUTER 4033089901	FAILED AUTO FLIGHT		3/18/98 HEEA0013444
COMPUTER FAILED TEST 11.10 ON SST TWICE.									
2400 HEEA	8045T 28101	BELL 214ST				CIRCUIT BREAKER M833830209	OPEN ELECT SYS		3/18/98 HEEA0013428
RELAY IS STUCK OPEN.									
2430 HEEA	59806 28140	BELL 214ST				RELAY 214175171103	FAILED DC SYS		3/26/98 HEEA0013545
GENERATOR FALLING OFF LINE.									
2432 HEEA	59806 28140	BELL 214ST				BATTERY CHARGER 214175379103	FAILED DC SYS		3/26/98 HEEA0013547
BATTERY LIGHT COMES ON IN FLIGHT. BATTERY CHARGER DEFECTIVE									
2435 HEEA	6957Y 28139	BELL 214ST				STARTER 2CM272B1	FAILED START GENERATOR	141	3/19/98 HEEA0013495
STARTER WILL NOT SPIN.									
2841 HEEA	59806 28140	BELL 214ST				PROBE 214066212105	FAILED FUEL SYS		3/18/98 HEEA0013449
PROBE INOPERATIVE.									
3421 HEEA	3897N 28106	BELL 214ST				VERTICAL GYRO 501125501	FAILED COCKPIT		3/18/98 HEEA0013411
VERT GYRO PRECESSES.									
3422 HEEA	59805 28141	BELL 214ST				TRANSMITTER 2594484	FAILED FLUX VALVE		3/19/98 HEEA0013482
TRANSMITTER READS LOW OUT OF TOLERANCE.									
3422 HEEA	59805 28141	BELL 214ST				TRANSMITTER 2594484	FAILED FLUX VALVE		3/19/98 HEEA0013483
TRANSMITTER EXCESSIVE READINGS.									
3424 HEEA	3897N 28106	BELL 214ST				RATE GYRO 214075244001	FAILED COCKPIT		3/19/98 HEEA0013459
INDICATES TURN WHEN STRAIGHT. RATE GYRO FAILED									
6240 HEEA	3897N 28106	BELL 214ST				DETECTOR 214074280105	MALFUNCTION M/R RPM		3/26/98 HEEA0013556
RPM DETECTOR HAS NO RPM LIGHT ILLUMINATION.									
6240 HEEA	3897N 28106	BELL 214ST				DETECTOR 214074280105	FAILED ROTOR RPM		3/18/98 HEEA0013450
ROTOR RPM AUDIO INOPERATIVE.									

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## DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS (cont'd)

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6710 HEEA	8045T 28101	BELL 214ST				ACTUATOR 214001423109	FAILED M/R		3/18/98 HEEA0013448
	ACTUATOR MOTOR WEAK.								
6710 HEEA	3897N 28106	BELL 214ST				ACTUATOR 214001423109	FAILED M/R		3/26/98 HEEA0013552
	ACTUATOR DOES NOT WORK.								
6710 HEEA	3897N 28106	BELL 214ST				ACTUATOR 214001423109	FAILED M/R		3/26/98 HEEA0013553
	ACTUATOR DOES NOT WORK.								
6510 VE3D	58236 53069	BELL 407				DISC PACK 406040340101	DAMAGED T/R DRIVE	748	3/5/98 98ZZZX1270
	INSPECTING HELICOPTER PER AD 97-22-15. FOUND 2 EACH TAIL ROTOR DRIVE DISC BOLTS LOOSE AND DISC PACK BEYOND DAMAGE LIMIT. TT 789.0 HOURS.								
6510 ALGR	437AL 53141	BELL 407				DISC PACK 406040340101	CRACKED T/R SHAFT NR 5		2/12/98 98ZZZX1253
	DURING 25-HOUR INPSECTION, FOUND ONE DISC IN PACK ASSEMBLY CRACKED. IT WAS THE NR 1 DISC IN THE PACK.								
6510 ALGR	437AL 53141	BELL 407			407030801101	DISC PACK T/R DRIVE SHAFT	CRACKED		1/18/98 98ZZZX1254
	ON PHASE NR 1 INSPECTION WHILE DOING AD 97-24-17 100-HOUR BLOWER INSPECTION, FOUND DISC NR 1 OF 10, TOTAL, CRACKED (STARTING FRONT TO BACK).								
2211 HEEA	5759N 33002	BELL 412				COMPUTER 7000298901	DEFECTIVE AFCS		3/19/98 HEEA0013465
	INTERMITTENTLY FAILS TEST 2.1 ON SST.								
2430 HEEA	1202T 33112	BELL 412				CONTROL UNIT 51509002R	FAILED DC SYS		3/18/98 HEEA0013438
	CONTROL UNIT FAILED. NO OUTPUT.								
2430 HEEA	1202T 33112	BELL 412				CONTROL UNIT 51509002R	FAILED DC SYS		3/18/98 HEEA0013439
	NO OUTPUT. CONTROL UNIT FAILED								
2430 HEEA	7128R 36007	BELL 412				CONTROL UNIT 51509002R	FAILED NR 1 DC SYS		3/18/98 HEEA0013441
	NR 1 GENERATOR INOPERATIVE.								
2432 HEEA	7128R 36007	BELL 412				BATTERY 30703001	FAILED DC SYS		3/19/98 HEEA0013499
	INSPECTED BY SHOP. FOUND BATTERY HAS NUMEROUS BURNT CELLS AND WILL NOT PASS CAPACITY TEST.								
2436 HEEA	21498 36003	BELL 412				CONTROL UNIT 51539002N	FAILED DC SYS		3/18/98 HEEA0013420
	WILL NOT COME ON LINE. CONTROL UNIT FAILED								

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## DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS (cont'd)

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2436 HEEA	6559Z 36019	BELL 412				CONTROL UNIT 51539002N	FAILED DC SYS		3/18/98 HEEA0013418
GENERATOR WILL NOT COME ON LINE. CONTROL UNIT FAILED									
2436 HEEA	6559Z 36019	BELL 412				CONTROL UNIT 51539002N	FAILED DC SYS		3/18/98 HEEA0013419
GENERATOR WILL NOT COME ON LINE. CONTROL UNIT FAILED									
2437 HEEA	22608 33075	BELL 412				DUAL AMMETER 209070264003	FAILED COCKPIT		3/19/98 HEEA0013486
NR2 NEEDLE WILL NOT INDICATE.									
2810 HEEA	107X 33113	BELL 412				CHECK VALVE 214066226103	LEAKING MID CELL		3/26/98 HEEA0013531
CHECK VALVE FAULTY. FUEL IS LEAKING INTO MID CELL.									
2820 HEEA	21498 36003	BELL 412				VALVE 233575	FAILED FUEL SYS		3/19/98 HEEA0013457
VALVE WILL NOT CLOSE IN NORMAL POSITION.									
2840 HEEA	22608 33075	BELL 412				SELECTOR 384178091	FAILED FUEL QTY		3/26/98 HEEA0013530
CAPACITANCE LOW OUT OF TOLERANCE.									
2841 HEEA	23023 33080	BELL 412				INDICATOR 393008047	DEFECTIVE FUEL QTY		3/19/98 HEEA0013479
WHEN TURNED OFF INDICATOR RISES TO 150 LBS.									
2910 HEEA	3893L 33006	BELL 412				VALVE ASSY 212076006007	FAILED HYD SYS		3/19/98 HEEA0013463
REMOTE BYPASS INDICATOR ON.									
2910 HEEA	3893N 33010	BELL 412				LINE 212076153001	CHAFED HYDRAULIC SYSTEM		3/25/97 98ZZZX1267
LOST PRESSURE TO NR 2 HYDRAULIC SYSTEM IN-FLIGHT. LANDED ON AN OFFSHORE PLATFORM WITHOUT FURTHER INCIDENT. MAINTENANCE FOUND HYDRAULIC LINE CHAFED AND LEAKING. APPEARED TO HAVE CHAFED ON ADJACENT FLEX HOSE. REF: 412 IPC, CHAPTER 29-99-00, PAGE 36, FIGURE 29-7, ITEM 93.									
2910 HEEA	108X 33115	BELL 412				HOSE 70012F000T204	LEAKING NR 1 HYD SYSTEM		3/16/98 98ZZZX1269
IN CRUISE, LOST NR 1 HYDRAULIC SYSTEM. LANDED WITHOUT INCIDENT. (PRESSURE INDICATION). MAINTENANCE FOUND HOSE TO COLLECTIVE SERVO LEAKING, REPLACED SAME. REF: 412 IPB, CHAPTER 29-99-00, FIG 29-3, ITEM 51.									
2915 HEEA	107X 33113	BELL 412				VALVE ASSY 212076006007	FAILED HYD SYS		3/19/98 HEEA0013458
BYPASS INDICATOR INOPERATIVE.									
2930 HEEA	22608 33075	BELL 412				INDICATOR 124043	FAILED HYD SYS		3/19/98 HEEA0013475
HYD SYS TEMP. NEEDLE STICKS. PAINT RANGE MARKING.									

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## DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS (cont'd)

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3340 HEEA	3893P 33012	BELL 412				STROBE 7028501	FAILED STROBE		3/26/98 HEEA0013538
STROBE INOPERATIVE, LIGHT WILL NOT FLASH.									
3340 HEEA	3893P 33012	BELL 412			WHELEN	LIGHT 7028521	FAILED STROBE		3/26/98 HEEA0013566
STROBE LIGHT INOPERATIVE.									
3340 HEEA	3893P 33012	BELL 412				LIGHT 7028501	FAILED STROBE		3/26/98 HEEA0013540
STROBE LIGHT INOPERATIVE.									
3340 HEEA	2149S 36002	BELL 412				LIGHT 7028511	SHORTED STROBE		3/26/98 HEEA0013539
STROBE LIGHT SHORTED, CAUSES CIRCUIT BREAKER TO POP.									
3414 HEEA	22608 33075	BELL 412				INDICATOR 412075009105	STICKS AIRSPEED		3/19/98 HEEA0013466
AIRSPEED NEEDLE STICKS AND HAS ERRATIC OPERATION.									
3416 HEEA	22347 36005	BELL 412				ENCODER 8800	FAILED COCKPIT		3/19/98 HEEA0013491
ALTITUDE ENCODER INTERMITTENTLY CAUSES GPS TO DISPLAY NO ATTITUDE INPUT.									
3421 HEEA	141PH 33197	BELL 412				INDICATOR 1113034	FAILED COCKPIT		3/18/98 HEEA0013422
ATTITUDE INDICATOR PITCHBALL ERRATIC IN MOVEMENT. KNOB INTERMITTENT.									
3425 HEEA	3893P 33012	BELL 412				INDICATOR 1113025	FAILED COCKPIT HSI		3/18/98 HEEA0013414
COCKPIT HSI RATCHETY WHEN POWER IS APPLIED.									
5260 HEEA	5759N 33002	BELL 412				ACTUATOR SYLC502281	FAILED STEP		3/25/98 HEEA0013523
STEP ACTUATOR INOPERATIVE; DOES NOT RETRACT.									
5260 HEEA	3893L 33006	BELL 412				ACTUATOR 212075418105	FAILED STEP	383	3/25/98 HEEA0013518
ACTUATOR INOPERATIVE.									
5260 HEEA	3893S 33022	BELL 412				ACTUATOR 212075418103	FAILED STEP		3/18/98 HEEA0013426
STEP ACTUATOR CAUSES STEP CIRCUIT BREAKER TO POP.									
5260 HEEA	3893S 33022	BELL 412				ACTUATOR 212075418105	FAILED STEP	53	3/25/98 HEEA0013517
STEP ACTUATOR DOESN'T RETRACT.									

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## DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS (cont'd)

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5260 HEEA	2298Z 33077	BELL 412				ACTUATOR 212075418103	FAILED STEP		3/19/98 HEEA0013487
STEP ACTUATOR INOPERATIVE POPS CIRCUIT BREAKER.									
5260 HEEA	107X 33113	BELL 412				ACTUATOR SYLC502283	FAILED STEP		3/25/98 HEEA0013519
STEP ACTUATOR WEAK, POPS CIRCUIT BREAKER AFTER TWO CYCLES.									
5260 HEEA	2149S 36002	BELL 412				ACTUATOR 212075418103	FAILED STEP		3/25/98 HEEA0013522
ACTUATOR WILL NOT ACTUATE.									
5260 HEEA	2149S 36002	BELL 412				ACTUATOR 212075418103	FAILED STEP		3/25/98 HEEA0013521
ACTUATOR WILL NOT EXTEND. OR SOMETIMES RETRACT.									
5260 HEEA	33008 36004	BELL 412				ACTUATOR 212075418103	FAILED STEP		3/25/98 HEEA0013524
STEP ACTUATOR INOPERATIVE.									
5260 HEEA	22347 36005	BELL 412				ACTUATOR SYLC502281	FAILED STEP		3/25/98 HEEA0013520
ACTUATOR OCASSIONALLY GIVES LIGHTS IN UP AND DOWN POSITION WITH TEST BOX.									
5313 ALGR	2071S 33046	BELL 412			212030100111	LONGERON 206030128165B	CRACKED LOWER LT		2/6/98 98ZZZX1247
DISCOVERED ON REMOVAL OF LEFT TAIL BOOM PANEL DURING ROUTINE MAINTENANCE. LONGERON WAS CRACKED IN THREE PLACES. SUSPECT CAUSE INDICATES LACK OF PROPER DEBURRING AT RIVET HOLES IN SEVERAL PLACES. PREPPED COMPLETELY PRIOR TO INSTALLATION.									
5610 HEEA		BELL 412				WINDOW P21207602	MIS MFG RT CHIN BUBBLE		3/26/98 HEEA0013565
WINDOW DOES NOT FIT CONTOUR OF AIRCRAFT AIRFRAME. DRAIN HOLES IN LOWER CORNER ARE LOCATED IN WRONG PLACE. SENT TO NORDAM TEXAS FOR CREDIT AGAINST ORIGINAL PURCHASE.									
5610 HEEA		BELL 412				WINDOW P21207601	MIS MFG LT LOWER		3/26/98 HEEA0013564
WINDOW DOES NOT FIT CONTOUR OF AIRCRAFT AIRFRAME. DRAIN HOLES IN LOWER CORNER ARE LOCATED IN WRONG PLACE.									
6210 HEEA		BELL 412				BLADE 412015300106	DEFECTIVE M/R	6113	3/19/98 HEEA0013507
BLADE WAS REPAIRED NEAR THE MIDSPAN TAB WHICH HAS CAUSED THE TIP TO EXCEED THE MAX WEIGHT LIMIT BY 161 GR.									
6220	900BH 33195	BELL 412				BEARING 412010106101	WORN M/R RED	1888	3/26/98 HAI00000001
BEARING IS WORN EXCESSIVELY. REPLACED WITH NEW									
6240 HEEA	2261D 33076	BELL 412				INDICATOR 412075010109	STUCK TRIPLE TACH		3/26/98 HEEA0013525
ROTOR NEEDLE STUCK AT 120 RPM.									

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## DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS (cont'd)

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6710 HEEA	3893S 33022	BELL 412				ACTUATOR ROTARY 214001347005	FAILED M/R		3/26/98 HEEA0013544
ROTARY ACTUATOR INOPERATIVE.									
6710 HEEA	3893S 33022	BELL 412				ACTUATOR ROTARY 214001347005	FAILED M/R		3/18/98 HEEA0013453
ROTARY ACTUATOR WILL NOT TEST.									
7200 HEEA	108X 33115	BELL 412	PWA PT6T3B			COMPRESSOR 3017600	STALLS ENGINE	16721	3/26/98 HEEA0013558
COMPRESSOR STALLS.									
7200 VE3R	18LA 36043	BELL 412	PWA PT6T3B			ENGINE	FAILED NR 1	2220	1/28/98 98ZZZX1261
ON FINAL APPROACH TO HOSPITAL ROOF TOP HELIPORT, RPM WARNING HORN ACTIVATED FOLLOWED BY 15 TO 20 SECONDS OF POPPING AND GRINDING NOISES FROM NR 1 ENGINE. AFTER GAINING AIRSPEED, ENGINE WAS SECURED AND AN OEI LANDING WAS MADE AT BURBANK AIRPORT. SUBSTANTIAL DAMAGE TO NR 1 ENGINE INTERIOR WAS FOUND, CAUSE UNKNOWN AT THIS TIME. COMPLETE TWIN-PAC BEING SENT TO PRATT & WHITNEY FOR EVALUATION.									
7210 HEEA	2149S 36002	BELL 412	PWA PT6T3B			GEARBOX 3017600	CRACKED OIL TEMP PORT	14364	3/18/98 HEEA0013415
ENG HAS CRACKED GEARBOX AT OIL TEMP BULB PORT.									
7712 HEEA	141PH 33197	BELL 412				TRANSMITTER 412075205101	ERRATIC ENG TORQUE		3/19/98 HEEA0013462
ERRATIC TORQUE FLUCTUATION ON NR1 ENGINE.									
7714 HEEA	2014K 33020	BELL 412				INDICATOR 412075010109	STICKS TRIPLE TACH		3/18/98 HEEA0013423
NR 1 NEEDLE STICKS AND INDICATES LOW OUT OF TOLERANCE.									
7714 HEEA	22608 33075	BELL 412				INDICATOR 412075010109	ERROR TRIPLE TACH		3/18/98 HEEA0013443
10 ERROR SPLIT EXCESSIVE FRICTION ERROR.									
7722 HEEA	2149S 36002	BELL 412				TRIM COMPENSATOR 3030083	FAILED ENGINE ITT		3/18/98 HEEA0013452
TRIM COMPENSATOR CAUSES ITT CIRCUIT BREAKER TO POP.									
7810 ALGR	2071S 33046	BELL 412			3017600	DUCT ASSY 3026934	CRACKED EXHAUST FLANGE		2/6/98 98ZZZX1248
DURING MAJOR REPAIR OF TAIL BOOM, FOUND EXIT DUCT ASSY VERTICAL CRACK APPROXIMATELY 1.25 INCHES LONG ON FORWARD SIDE OF FLANGE. SUSPECT CAUSED BY VIBRATION FROM SEVERE CRACK ALONG EXHAUST EJECTOR 12 INCHES LONG ALONG WELDED BEAD FROM FORWARD TO AFT SIDE OF EJECTOR. LIMIT THE NUMBER OF WELDS TO EJECTOR AND LENGTH.									
7810 HEEA	142PH 33150	BELL 412				EJECTOR 212061201011	CRACKED LT EXH		3/18/98 HEEA0013445
LT EJECTOR ASSY RING CRACKED.									

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## DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS (cont'd)

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7810 HEEA	142PH 33150	BELL 412				EJECTOR 212061201012	CRACKED RT EXH		3/18/98 HEEA0013446
RT EJECTOR ASSY RING CRACKED.									
7931 HEEA	3893L 33006	BELL 412				TRANSMITTER APTE138100G	FAILED OIL PRESS		3/19/98 HEEA0013473
TRANSMITS 20 PSI HIGH.									
6220 CHIR	241CH MJ016	BOEING 234			414R2002	SHOULDER BOLT 114R22012	FAILED ROTOR HEAD		3/17/98 CHI2077
AFT ROTOR HEAD SHOULDER BOLT FAILED. SUBMITTER STATED 114R22012 IS THE IMPROVED BOLT THAT IS SUPPOSED TO PREVENT THIS TYPE OF FAILURE.									
2436 HEEA	3533T S111	BOLKMS BO105S				REGULATOR 51565000R	FAILED DC SYS		3/19/98 HEEA0013468
VOLTAGE WILL NOT ADJUST.									
2913 HEEA	6607K S841	BOLKMS BO105S			10545028	GUIDE ASSY D1331454E	REQUIRED LUBE HYDRAULIC PACK		3/16/98 98ZZZX1239
HYDRAULIC BLOCK LIGHT ILLUMINATED IN CRUISE FLIGHT. RETURNED TO BASE AND LANDED WITHOUT INCIDENT. MAINTENANCE LUBRICATED MICROSWITCH AND GUIDE ASSEMBLY. REF: BO-105 IPB, CHAPTER 2-447-001, FIGURE 447, ITEM 50.									
3416 HEEA	3520T S539	BOLKMS BO105S				ALTIMETER 10162701696	MALFUNCTION COCKPIT ENCODER		3/26/98 HEEA0013568
EXCESSIVE FRICTION ERROR AND ENCODER READS LOW.									
3424 HEEA	3533T S111	BOLKMS BO105S				INDICATOR A1605	FAILED TURN & BANK		3/26/98 HEEA0013535
TURN & BANK INDICATOR HAS NO INDICATION.									
3457 HEEA	624MB S751	BOLKMS BO105S				GPS 150 0110005400	FAILED COCKPIT		3/19/98 HEEA0013497
CANNOT ACQUIRE SATELLITES FOR 1 1/2 HOURS ON 1ST FLIGHT OF DAY. PERFORMED PRELIMINARY INSPECTION. FOUND UNIT TO TAKE EXCESSIVELY LONG TO LOCK ON.									
6210 HEEA	9190Y S669	BOLKMS BO105S				BLADE 10515141	CRACKED M/R	2891	3/19/98 HEEA0013506
M/R BLADE NOSE AND NECK SHELL CRACKED AND SEPARATED.									
6210 HEEA	9190Y S669	BOLKMS BO105S				BLADE 10515141	CRACKED M/R	2891	3/19/98 HEEA0013505
M/R BLADE NOSE AND NECK SHELL CRACKED AND SEPARATED.									
6240 HEEA	3533T S111	BOLKMS BO105S				INDICATOR HMM02	MALFUNCTION MAST MOMENT		3/26/98 HEEA0013533
LIGHT FLICKERS WHEN POWER TURNED ON.									
6240 HEEA	3533T S111	BOLKMS BO105S				TRANSMITTER 10594576	FAILED MAST MOMENT		3/26/98 HEEA0013534
MAST MOMENT TRANSMITTER WILL NOT CHECK CORRECTLY.									

\*\*\*\*\* DENOTES SIGNIFICANT OCCURRENCE

## DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS (cont'd)

3/29/98 To 4/4/98 ISSUE: 98-14 ZAC-327

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
6240 HEEA	81832 S828	BOLKMS BO105S				INDICATOR 10594564	FAILED MAST MOMENT		3/19/98 HEEA0013471
INDICATOR WILL TEST BUT WILL NOT WORK IN FLIGHT.									
6240 HEEA	81832 S828	BOLKMS BO105S				TRANSMITTER 10594575	FAILED MAST MOMENT		3/19/98 HEEA0013470
MAST MOMENT TRANSMITTER WILL TEST BUT WILL NOT WORK IN FLIGHT.									
6320 HEEA	967MB S737	BOLKMS BO105S				UPPER HOUSING 4638201005	DEFECTIVE M/R GR BOX		3/26/98 HEEA0013559
UPPER BORE WORN LINER LOOSE.									
6320 HEEA	967MB S737	BOLKMS BO105S				CENTER CASE 4619201902	WORN GR BOX		3/26/98 HEEA0013549
TR QUILL WORN. OIL NOZZLE SEAT WORN. ACCY FAN DRIVE QUILLS WORN AND PIN SEAT WORN.									
6320 HEEA	967MB S737	BOLKMS BO105S				LOWER HOUSING 4638201004	CORRODED M/R		3/26/98 HEEA0013548
M/R GR BOX LINERS LOOSE. INTERNAL SHAFT SEAT WORN. CORROSION ON LOWER FLANGE.									
6710 ALGR	352TT S59	BOLKMS BO105C				PITCH LINK 10513122	CRACKED MAIN ROTOR HUB		2/12/98 98ZZZX1249
WHILE C/W DAILY INSPECTION OF AD 87-26-02R1, FOUND BLUE MRB PITCH LINK CRACKED AT BOTTOM END OF ROD ON SLEEVE PORTION. REMOVED CRACKED PITCH LINK (BLUE), AND INSTALLED SERVICEABLE LINK IAW BO-105 MM. OPS FUNCTIONAL CHECK GOOD.									
7230 CK2R	105HH S339	BOLKMS BO105S	ALLSN 250C20B			WHEEL BLADE 6876655	MISSING COMPRESSOR NR 5	3/9/98 1722	98ZZZX1273
UPON COMPRESSOR DISASSEMBLY FOR OVERHAUL, FOUND ONE BLADE MISSING FROM 5TH STAGE COMPRESSOR WHEEL. BLADE APPEARS TO HAVE EXITED THROUGH BLEED VALVE AS NO DOWNSTREAM DAMAGE OCCURRED. NO IN-SERVICE DIFFICULTY WAS REPORTED. THE COMPRESSOR WHEEL EXHIBITS EVIDENCE OF A CORROSION PIT HALF WAY THROUGH CHORD OF BLADE AT BREAK POINT.									
7240 ALGR	352TT S59	BOLKMS BO105C	ALLSN 250C20B		6898735	NOZZLE SHIELD 23062750	CRACKED COMBUST SECTION	1123	1/22/98 98ZZZX1250
UPON DISASSEMBLY OF TURBINE FOR REPAIR DUE TO BLOWING OIL OUT OF EXHAUST, FOUND DOME AND SHIELD HAD HEAVY OIL STAINS AND DOME PART SEPARATED FROM INNER BAND AND CRACKED. SUBMITTER SUGGESTED POSSIBLY DUE TO TIGHT FIT TO NEW NR 1 FLOATING DIAPHRAGM NOZZLE AND POSSIBLE VIBRATION. (FIRST RUN ON THE NOZZLE). ASSURE NR 1 NOZZLE SHIELD HAS SNUG TO LIGHT LOOSE FIT TO ALL NR 1 NOZZLES. EXTREME TIGHT FIT AT TANGS TO SADDLE COULD CAUSE THIS PROBLEM.									
7714 HEEA	205UC S668	BOLKMS BO105S				INDICATOR 4011001	FAILED TRIPLE TACH		3/19/98 HEEA0013485
INDICATOR READS TOO LOW AT FLIGHT.									
7722 HEEA	3520T S539	BOLKMS BO105S				INDICATOR 50061036	FAILED EXHAUST TEMP		3/26/98 HEEA0013532
EXH TEMP INDICATOR EXCESSIVE FRICTION AND CANNOT CALIBRATE.									
2210 HEEA	217UC 7152	BOLKMS BK117B1				CONVERTER 1177130501	WORN AUTO FLIGHT		3/18/98 HEEA0013434
CONVERTER WORN OUT. SHAFT HAS TOO MUCH PLAY.									

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## DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS (cont'd)

3/29/98 To 4/4/98 ISSUE: 98-14 ZAC-327

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
2422 HEEA	136AE 7234	BOLKMS BK117B2				STATIC INVERTER SS120	FAILED AC SYS		3/19/98 HEEA0013493
	STATIC INVERTER INTERMITTENT.								
3422 HEEA	134AE 7237	BOLKMS BK117B2				GYRO 40205773	FAILED COCKPIT DG		3/19/98 HEEA0013469
	FAILED TEST 1.1 ON SST NO VALID.								
7712 HEEA	911RZ 7092	BOLKMS BK117A4				TRANSDUCER G555674	ERRATIC TORQUE		3/26/98 HEEA0013550
	PRESSURE TRANSDUCER ERRATIC INDICATION.								
7931 HEEA	217UC 7152	BOLKMS BK117B1				PRESS SWITCH 1176131203	FAILED NR 2 ENG OIL		3/26/98 HEEA0013557
	NR 2 ENGINE OIL PRESSURE CAUTION LIGHT NOT GOING OUT.								
7320 CK2R	13WD 685	HUGHES 369HS	ALLSN 250C20			CASE HALF 68774210	ERODED COMP MODULE		3/9/98 98ZZZX1272
	A SLIGHT RUB WAS HEARD IN THE COMPRESSOR WHEN THE N1 WAS ROTATED. UPON CASE HALF REMOVAL FOR INSPECTION, SEVERE VANE EROSION WAS FOUND. THE CHORD OF ONE VANE WAS SO THIN AS TO CAUSE THE VANE TO BEND AND RUB ON THE COMPRESSOR ROTOR. SUBMITTER SUSPECTS CASE HALF INSPECTIONS FOR OPERATION IN AN EROISVE ENVIRONMENT WERE NOT CARRIED OUT PER THE MM.								
2210 HEEA	5426U 760167	SKRSKY S76A				PITCH SLICE AMP 7611123	MALFUNCTION AUTO FLIGHT		3/26/98 HEEA0013551
	NR 1 PITCH KICKS IN FLIGHT.								
2312 HEEA	1546G 760076	SKRSKY S76A				TRANSCIEVER 7001840913	FAILED COCKPIT		3/18/98 HEEA0013431
	TRANSCIEVER WILL NOT TEST. ERRATIC READING.								
2312 HEEA	1546G 760076	SKRSKY S76A				TRANSCIEVER 7001840913	FAILED COCKPIT		3/26/98 HEEA0013529
	TRANSCIEVER INTERMITTENT OUTPUT.								
2424 HEEA	22342 760096	SKRSKY S76A				GENERATOR CONT 7655009005104	FAILED AC SYS		3/18/98 HEEA0013432
	A/C GEN. WILL NOT TEST IN THE OVERVOLT AND UNDERVOLT POSITION.								
2424 HEEA	5128 760181	SKRSKY S76A				GENERATOR CONT 7655009005108	FAILED AC SYS		3/18/98 HEEA0013433
	GENERATOR WILL NOT COME ON LINE.								
2430 HEEA	1545X 760050	SKRSKY S76A				DC CONTROL UNIT 7655009006105	FAILED DC SYS		3/18/98 HEEA0013442
	GENERATOR WOULD NOT COME ON LINE.								
2611 HEEA	1545X 760050	SKRSKY S76A				SMOKE DETECTOR 30231R7B	FAILED FIRE SYS		3/26/98 HEEA0013528
	SMOKE DETECTOR WILL NOT TEST.								

\*\*\*\*\* DENOTES SIGNIFICANT OCCURRENCE

## DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS (cont'd)

3/29/98 To 4/4/98 ISSUE: 98-14 ZAC-327

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
3213 ALGR	705AL 760267	SKRSKY S76			1945E100B	SEAL 7333FT160N	LEAKING MLG LOWER CYL	2747	12/1/97 98ZZZX1258
IN FIELD 12-97, OIL LEAKING FROM STRUT AND PROBLEM SERVICING STRUT. STRUT WOULD NOT ACTUATE PROPERLY. FOUND LOW OIL LEVER IN CYLINDER PREVENTING PROPER ACTUATING OF PISTON HEAD SNUBBER. THIS ALLOWED UNCONTROLLED EXTENSION OF STRUT PISTON DURING AIRCRAFT LIFT-OFF AND HAMMERING OF PISTON HEAD AGAINST EXTENSION STOP AND SHEARING OF PISTON HEAD RETAINING PINS. THIS ALLOWED PISTON TO SEPARATE FROM PISTON HEAD. PISTON JAMMED PISTON HEAD IN TOP OF STRUT CYLINDER AND PREVENTED PROPER MOVEMENT OF PISTON IN STRUT CYLINDER.									
3340 HEEA	1547D 760077	SKRSKY S76A				POWER SUPPLY A413AHDACF1428	FAILED STROBE		3/18/98 HEEA0013437
LIGHT INOPERATIVE.									
3416 HEEA	5426U 760167	SKRSKY S76A				ALTIMETER 8503S20LW5V	FAILED COCKPIT		3/19/98 HEEA0013503
ALTIMETER INDICATES OUT OF TOLERANCE AT APPROXIMATELY 18,000 FEET. ALSO UNIT HAS CLICKING NOISE WHILE BEING RUN.									
3420 HEEA	1546G 760076	SKRSKY S76A				GYRO 258719343	FAILED COCKPIT		3/19/98 HEEA0013461
FAILED TEST 6.6 ON SST.									
3425 HEEA	1546G 760076	SKRSKY S76A				HSI 125810	FAILED COCKPIT		3/18/98 HEEA0013421
HSI COURSE SET KNOB AND NEEDLE DOES NOT WORK.									
3451 HEEA	1546G 760076	SKRSKY S76A				TRANSCIEVER 066106602	FAILED DME		3/23/98 HEEA0013509
DME OPERATED 50% OF THE TIME AND IS VERY WEAK. PERFORMED PRELIMINARY INSPECTION, VERIFIED PROBLEM. UNIT WAS HEAVILY CORRODED. CLEANED CORROSION FROM ALL BOARDS AND CHASIS. BEGAN BENCH CHECK AND UNIT DREW EXCESSIVE CURRENT AND BURNT R236, R240 ON THE MODULATOR BOARD. SENT TO									
3452 HEEA	31217 760229	SKRSKY S76A				TRANSPONDER 066106202	FAILED COCKPIT		3/23/98 HEEA0013510
TRANSPONDER INOPERATIVE. RECEIVE INTERMITTENT. PERFORMED PRELIMINARY INSPECTION, VERIFIED PROBLEM. FOUND NO 192 VOLT LINE. TROUBLESHOT AND REPLACED Q105, REPAIRED. BEGAN BENCH CHECK AND FOUND RECEIVER SENSE WEAK AND INTERMITTENTLY RECEIVES.									
6210 ALGR	705AL 760267	SKRSKY S76				BLADE 7615009100053	CRACKED M/R	3588 440	12/18/97 98ZZZX1257
DISCOVERED DURING 500-HOUR INSPECTION, FOUND M/R BLADE SKIN CRACKED AT FORWARD EDGE OF TRIM TAB.									
6210 HEEA	1545X 760050	SKRSKY S76A				BLADE 7615009100042A	SEPARATION M/R	12229	3/18/98 HEEA0013454
FIBERGLASS SEPARATED UNDERNEATH THE SLICE TITANIUM AT STATION 112.5 ON BOTH SURFACES. THE TRIM TAB HAS SOME SEPARATION ALSO.									
6210 HEEA	3122H 760233	SKRSKY S76A				BEARING SB7004103	WORN BLADE SPINDLE		3/18/98 HEEA0013424
BEARING HAS EXCESSIVE RUBBER WEAR.									
6220 HEEA	1547D 760077	SKRSKY S76A				DAMPER 7610608000049	LEAKING M/R		3/26/98 HEEA0013560
M/R ROTOR DAMPER WEAK AND LEAKING.									

\*\*\*\*\* DENOTES SIGNIFICANT OCCURRENCE

## DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS (cont'd)

3/29/98 To 4/4/98 ISSUE: 98-14 ZAC-327

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
6520	376AL	SKRSKY				BEARING CUP	FAILED	15370	2/11/98
ALGR	760002	S76A				SB3202B	INPUT GEARBOX	2416	98ZZZX1252
ON GROUND RUN UP, HAD BEARING FAILURE IN INPUT QUILL ASSEMBLY. COMPONENT P/N 7635705000041.									
6520	376AL	SKRSKY				BEARING CONE	FAILED	15370	2/11/98
ALGR	760002	S76A				SB3202A2	INPUT GEARBOX	2416	98ZZZX1251
ON GROUND RUN UP, HAD BEARING FAILURE IN INPUT QUILL ASSEMBLY. COMPONENT P/N 7635705000041.									
7314	1545X	SKRSKY				FUEL PUMP	WORN	9673	3/19/98
HEEA	760050	S76A				3944001	ENG FUEL		HEEA0013501
FUEL PUMP WORN SPLINES.									
6500	126TV	SNIAS				SPHERICAL STOP	DEFECTIVE	513	8/23/97
YWYR	2944	AS350B2				704A33633171	T/R		98ZZZX1263
BULGES IN T/R SPHERICAL STOP.									
6520		SNIAS				BEARING	DEFECTIVE		11/24/97
FBLR		AS350B2				350A33215300	T/R GEARBOX		98ZZZX1240
TAIL ROTOR BEARING IS DEFECTIVE PER SL 1337-65-97, DATED 11-24-97.									
7600	60951	SNIAS				ROD SPRING	CORRODED		3/25/98
HEEA	2771	AS350B2				350A57149000	ENG CONTROL		HEEA0013514
RUST AND CORROSION INSIDE.									
7714	126TV	SNIAS				INDICATOR	FAILED	513	8/23/97
YWYR	2944	AS350B2				614764021	ENG TACHOMETER		98ZZZX1262
TACHOMETER INDICATOR READ INTERMITTENTLY LOW.									
(End of DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS)									



# DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - ENGINES

3/29/98 - 4/4/98 ISSUE: 98-14 ZAC-327

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
7240 YRRD	66804 BE82	BEECH B100	GARRTT TPE3316252B			COMBUSTION CASE 8939735	FAILED LT ENG PLENUM	3/10/98	98ZZZX1246
*****	DURING T/O, PILOT HEARD A 'POOF' SOUND. NOTICED THE COWLING PAINT DISCOLORED AND THE OIL FILLER DOOR OPEN. TAKEOFF ABORTED, AND ENG EMERG SHUTDOWN. INVEST DETERMINED THE LT ENG COMBUSTION CASE (PLENUM) HAD FAILED. ENG REMOVED FOR REPAIR, ENG COMPARTMENT DAMAGE REPAIRED. ENG DISASSEMBLED FOR INSPECT AND IT APPEARED THE PLENUM HAD FAILED AT/AROUND THE P-3 FITTING BOSS. ENG MFG CONTACTED TO ESTABLISH IF THE PLENUM WAS AN ORIGINAL COMPONENT FOR THE ENG. MFG REPLIED PLENUM P/N AND S/N WERE NOT IN THE FACILITIES DATA BASE, AND A NON-MFG REPAIR CODE WAS EVIDENT. SUBMITTER RECOMMENDED TO PREVENT RECURRENCE, INSPECT P-3 FITTING BOSS/CUSTOMER AIR PAD AREA OF THE COMBUSTION CASE (PLENUM) CLOSELY AT INSPECTIONS.								
7200 HEEA	3207Q 51540	BELL 206L3	ALLSN 250C30P			ENGINE	MALFUNCTION POWER RPM	5348 126	4/8/97 98ZZZX1268
	PILOT REPORTED THAT AIRCRAFT YAWED IN CRUISE FLIGHT AND THE ROTOR RPM DROPPED AND RECOVERED TO 96 PERCENT. RETURNED TO OFFSHORE PLATFORM WITH 96 PERCENT ROTOR RPM. AFTER LANDING AND EXERCISING COLLECTIVE, THE ROTOR RPM RETURNED TO 100 PERCENT. MAINTENANCE C/W A PRESSURE AND VACUUM FUEL SYSTEM CHECK. COULD NOT FIND ANY PROBLEMS. REPLACED FUEL CONTROL, GOVERNOR, AND FUEL NOZZLE FOR PRECAUTION.								
7210 ALGR		BELL 206L4	ALLSN 250C30P		23053349	GARLOCK SEAL 406340104101	LEAKING PTO FWD SEAL	11/7/97	98ZZZX1274
	NEW PTO SEALS INSTALLED IN REPAIRED GEARBOX ON 9-23-97. ENGINE WAS ASSEMBLED AND TESTED ON 11-07-97. DURING TEST RUN, FOUND FORWARD PTO SEAL LEAKING. NEW PTO SEALS ARE LARGER IN DIAMETER THAN (RED) PTO SEALS PN 524919. UPON INSTALLATION, SEALS ARE EXTREMELY TIGHT CAUSING SEALS TO BOW AND CAUSE LEAKAGE.								
7250 HEEA	513EH 45421	BELL 206L1	ALLSN 250C28B		23033185	NOZZLE 23008054	CRACKED NR 1	3/23/98	HEEA0013508
	ENGINE REMOVED DUE TO OIL BLOWING OUT OF COMP. DISCHARGE. TURBINE DISASSEMBLED DUE TO LOW POWER ON TEST CELL. UPON INSPECTION OF TURBINE PARTS NOTED: CRACKED BEYOND SERVICEABLE LIMITS ON NR1 NOZZLE VANES, OUTERBAND AND KEYWELDS.								
7314 HEEA	42EA 51542	BELL 206L3				FUEL PUMP 3881005	WORN ENG FUEL	5377	3/19/98 HEEA0013502
	FUEL PUMP HAS WORN SPLINES.								
7200 HEEA	108X 33115	BELL 412	PWA PT6T3B			COMPRESSOR 3017600	STALLS ENGINE	16721	3/26/98 HEEA0013558
	COMPRESSOR STALLS.								
7200 VE3R	18LA 36043	BELL 412	PWA PT6T3B			ENGINE	FAILED NR 1	2220	1/28/98 98ZZZX1261
	ON FINAL APPROACH TO HOSPITAL ROOF TOP HELIPORT, RPM WARNING HORN ACTIVATED FOLLOWED BY 15 TO 20 SECONDS OF POPPING AND GRINDING NOISES FROM NR 1 ENGINE. AFTER GAINING AIRSPEED, ENGINE WAS SECURED AND AN OEI LANDING WAS MADE AT BURBANK AIRPORT. SUBSTANTIAL DAMAGE TO NR 1 ENGINE INTERIOR WAS FOUND, CAUSE UNKNOWN AT THIS TIME. COMPLETE TWIN-PAC BEING SENT TO PRATT & WHITNEY FOR EVALUATION.								
7210 HEEA	2149S 36002	BELL 412	PWA PT6T3B			GEARBOX 3017600	CRACKED OIL TEMP PORT	14364	3/18/98 HEEA0013415
	ENG HAS CRACKED GEARBOX AT OIL TEMP BULB PORT.								
7230 CK2R	105HH S339	BOLKMS BO105S	ALLSN 250C20B			WHEEL BLADE 6876655	MISSING COMPRESSOR NR 5	3/9/98 1722	98ZZZX1273
	UPON COMPRESSOR DISASSEMBLY FOR OVERHAUL, FOUND ONE BLADE MISSING FROM 5TH STAGE COMPRESSOR WHEEL. BLADE APPEARS TO HAVE EXITED THROUGH BLEED VALVE AS NO DOWNSTREAM DAMAGE OCCURRED. NO IN-SERVICE DIFFICULTY WAS REPORTED. THE COMPRESSOR WHEEL EXHIBITS EVIDENCE OF A CORROSION PIT HALF WAY THROUGH CHORD OF BLADE AT BREAK POINT.								

\*\*\*\*\* DENOTES SIGNIFICANT OCCURRENCE

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
7240	352TT	BOLKMS	ALLSN			NOZZLE SHIELD	CRACKED	1123	1/22/98
ALGR	S59	BO105C	250C20B		6898735	23062750	COMBUST SECTION		98ZZZX1250
UPON DISASSEMBLY OF TURBINE FOR REPAIR DUE TO BLOWING OIL OUT OF EXHAUST, FOUND DOME AND SHIELD HAD HEAVY OIL STAINS AND DOME PART SEPARATED FROM INNER BAND AND CRACKED. SUBMITTER SUGGESTED POSSIBLY DUE TO TIGHT FIT TO NEW NR 1 FLOATING DIAPHRAGM NOZZLE AND POSSIBLE VIBRATION. (FIRST RUN ON THE NOZZLE). ASSURE NR 1 NOZZLE SHIELD HAS SNUG TO LIGHT LOOSE FIT TO ALL NR 1 NOZZLES. EXTREME TIGHT FIT AT TANGS TO SADDLE COULD CAUSE THIS PROBLEM.									
7320	13WD	HUGHES	ALLSN			CASE HALF	ERODED		3/9/98
CK2R	685	369HS	250C20			68774210	COMP MODULE		98ZZZX1272
A SLIGHT RUB WAS HEARD IN THE COMPRESSOR WHEN THE N1 WAS ROTATED. UPON CASE HALF REMOVAL FOR INSPECTION, SEVERE VANE EROSION WAS FOUND. THE CHORD OF ONE VANE WAS SO THIN AS TO CAUSE THE VANE TO BEND AND RUB ON THE COMPRESSOR ROTOR. SUBMITTER SUSPECTS CASE HALF INSPECTIONS FOR OPERATION IN AN EROSION ENVIRONMENT WERE NOT CARRIED OUT PER THE MM.									
7314	1545X	SKRSKY				FUEL PUMP	WORN	9673	3/19/98
HEEA	760050	S76A				3944001	ENG FUEL		HEEA0013501
FUEL PUMP WORN SPLINES.									

(End of DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - ENGINES)

**DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - COMPONENTS****3/29/98 - 4/4/98    ISSUE: 98-14    ZAC-327**

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
3416 HEEA	30PH BB635	BEECH 200BEECH				ENCODER 8800	FAILED COCKPIT		3/19/98 HEEA0013492
ENCORDER FAULTY NO ATTITUDE INPUT ON GPS.									
3422 HEEA	500PH BL29	BEECH 200CBEECH				GYRO COMPASS 5223241000	FAILED COCKPIT		3/19/98 HEEA0013467
GYRO COMPASS SLOW TO SLAVE.									
3425 HEEA	789DS BB478	BEECH 200BEECH				FLIGHT DIRECTOR 4018369902	FAILED COCKPIT		3/18/98 HEEA0013430
ALTITUDE SELECT MODE INOPERATIVE.									
3457 HEEA	39PH BL3	BEECH 200CBEECH			SKYNAV 5000	GPS 0845000000	DEFECTIVE COCKPIT		3/23/98 HEEA0013512
SELECTOR KNOB SKIPS DIGITS AND LETTERS WHEN TRYING TO SELECT.									
2312 HEEA	2278V 3632	BELL 206B3				TRANSCIEIVER 064105430	FAILED COCKPIT		3/23/98 HEEA0013511
24 MONTH INSPECTION DUE. PERFORMED PRELIMINARY INSPECTION AND TESTED UNIT. FOUND DISPLAY NOT DIMMING. SWAPPED OUT DS901 DISPLAY AND V901 PHOTOCCELL. NO HELP. FOUND I509 INTEGRATED CIRCUIT (SURFACE MOUNT) BAD.									
3416 HEEA	8588X 51486	BELL 206L3				ALTIMETER 5934D1	ERRORS COCKPIT		3/26/98 HEEA0013536
ALTIMETER HAS EXCESSIVE FRICTION ERROR.									
3422 HEEA	5736J 31140	BELL 212				TRANSMITTER 2594484	ERRATIC FLUX VALVE		3/19/98 HEEA0013484
FLUX VALVE HAS ERRATIC READINGS.									
3425 HEEA	5736J 31140	BELL 212				COMPENSATOR 656767	FAILED COCKPIT HSI		3/19/98 HEEA0013490
COMPENSATOR WILL NOT ADJUST.									
2211 HEEA	5759N 33002	BELL 412				COMPUTER 7000298901	DEFECTIVE AFCS		3/19/98 HEEA0013465
INTERMITTENTLY FAILS TEST 2.1 ON SST.									
3414 HEEA	22608 33075	BELL 412				INDICATOR 412075009105	STICKS AIRSPEED		3/19/98 HEEA0013466
AIRSPEED NEEDLE STICKS AND HAS ERRATIC OPERATION.									
3416 HEEA	22347 36005	BELL 412				ENCODER 8800	FAILED COCKPIT		3/19/98 HEEA0013491
ALTITUDE ENCODER INTERMITTENTLY CAUSES GPS TO DISPLAY NO ATTITUDE INPUT.									
3421 HEEA	141PH 33197	BELL 412				INDICATOR 1113034	FAILED COCKPIT		3/18/98 HEEA0013422
ATTITUDE INDICATOR PITCHBALL ERRATIC IN MOVEMENT. KNOB INTERMITTENT.									

\*\*\*\*\* DENOTES SIGNIFICANT OCCURRENCE

## DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - COMPONENTS (cont'd)

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ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
3425 HEEA	3893P 33012	BELL 412				INDICATOR 1113025	FAILED COCKPIT HSI		3/18/98 HEEA0013414
COCKPIT HSI RATCHETY WHEN POWER IS APPLIED.									
3416 HEEA	3520T S539	BOLKMS BO105S				ALTIMETER 10162701696	MALFUNCTION COCKPIT ENCODER		3/26/98 HEEA0013568
EXCESSIVE FRICTION ERROR AND ENCODER READS LOW.									
3424 HEEA	3533T S111	BOLKMS BO105S				INDICATOR A1605	FAILED TURN & BANK		3/26/98 HEEA0013535
TURN & BANK INDICATOR HAS NO INDICATION.									
3457 HEEA	624MB S751	BOLKMS BO105S				GPS 150 0110005400	FAILED COCKPIT		3/19/98 HEEA0013497
CANNOT ACQUIRE SATELLITES FOR 1 1/2 HOURS ON 1ST FLIGHT OF DAY. PERFORMED PRELIMINARY INSPECTION. FOUND UNIT TO TAKE EXCESSIVELY LONG TO LOCK ON.									
2210 HEEA	217UC 7152	BOLKMS BK117B1				CONVERTER 1177130501	WORN AUTO FLIGHT		3/18/98 HEEA0013434
CONVERTER WORN OUT. SHAFT HAS TOO MUCH PLAY.									
3422 HEEA	134AE 7237	BOLKMS BK117B2				GYRO 40205773	FAILED COCKPIT DG		3/19/98 HEEA0013469
FAILED TEST 1.1 ON SST NO VALID.									
2210 HEEA	5426U 760167	SKRSKY S76A				PITCH SLICE AMP 7611123	MALFUNCTION AUTO FLIGHT		3/26/98 HEEA0013551
NR 1 PITCH KICKS IN FLIGHT.									
2312 HEEA	1546G 760076	SKRSKY S76A				TRANSCEIVER 7001840913	FAILED COCKPIT		3/26/98 HEEA0013529
TRANSCEIVER INTERMITTENT OUTPUT.									
2312 HEEA	1546G 760076	SKRSKY S76A				TRANSCEIVER 7001840913	FAILED COCKPIT		3/18/98 HEEA0013431
TRANSCEIVER WILL NOT TEST. ERRATIC READING.									
3416 HEEA	5426U 760167	SKRSKY S76A				ALTIMETER 8503S20LW5V	FAILED COCKPIT		3/19/98 HEEA0013503
ALTIMETER INDICATES OUT OF TOLERANCE AT APPROXIMATELY 18,000 FEET. ALSO UNIT HAS CLICKING NOISE WHILE BEING RUN.									
3420 HEEA	1546G 760076	SKRSKY S76A				GYRO 258719343	FAILED COCKPIT		3/19/98 HEEA0013461
FAILED TEST 6.6 ON SST.									
3425 HEEA	1546G 760076	SKRSKY S76A				HSI 125810	FAILED COCKPIT		3/18/98 HEEA0013421
HSI COURSE SET KNOB AND NEEDLE DOES NOT WORK.									

\*\*\*\*\* DENOTES SIGNIFICANT OCCURRENCE

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3451	1546G	SKRSKY				TRANSCEIVER	FAILED		3/23/98
HEEA	760076	S76A				066106602	DME		HEEA0013509
DME OPERATED 50% OF THE TIME AND IS VERY WEAK. PERFORMED PRELIMINARY INSPECTION, VERIFIED PROBLEM. UNIT WAS HEAVILY CORRODED. CLEANED CORROSION FROM ALL BOARDS AND CHASIS. BEGAN BENCH CHECK AND UNIT DREW EXCESSIVE CURRENT AND BURNT R236, R240 ON THE MODULATOR BOARD. SENT TO									
3452	31217	SKRSKY				TRANSPONDER	FAILED		3/23/98
HEEA	760229	S76A				066106202	COCKPIT		HEEA0013510
TRANSPONDER INOPERATIVE. RECEIVE INTERMITTENT. PERFORMED PRELIMINARY INSPECTION, VERIFIED PROBLEM. FOUND NO 192 VOLT LINE. TROUBLESHOT AND REPLACED Q105, REPAIRED. BEGAN BENCH CHECK AND FOUND RECEIVER SENSE WEAK AND INTERMITTENTLY RECEIVES.									

(End of DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - COMPONENTS)

**DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - PROPELLERS**

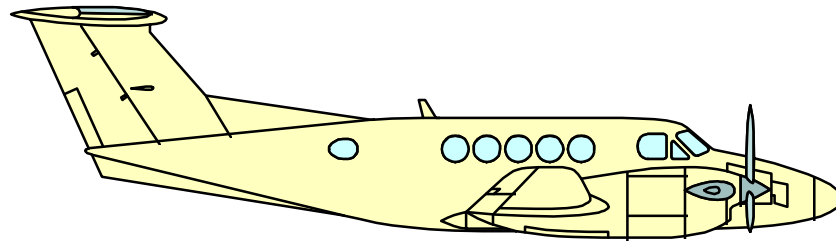
**3/29/98 - 4/4/98    ISSUE: 98-14    ZAC-327**

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6140 HEEA	30PH BB635	BEECH 200BEECH				TACH GENERATOR 503890571	FAILED PROP		3/19/98 HEEA0013489
NR1 GAUGE STAYS ON ZERO.									
6140 HEEA	30PH BB635	BEECH 200BEECH				TACH GENERATOR 503890571	ERRATIC PROP		3/19/98 HEEA0013488
ERRATIC OUTPUT.									

**(End of DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - PROPELLERS)**



# **INTERNATIONAL SERVICE DIFFICULTY REPORT**



**INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - AIRCRAFT****3/29/98 - 4/4/98 ISSUE: 98-14 ZAC-327**

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
3211		BBAVIA 8GCBC			71461	GEAR LEG 71461	BROKEN ATTACH SADDLE	3045	7/28/97 CA970731013
(CAN) LT MAIN GEAR FAILED DURING TAXI ONTO RUNWAY FROM GRASS LANDING AREA. FAILURE OCCURRED IN THE MAIN GEAR LEG JUST PAST THE ATTACHMENT SADDLE. GEAR LEG COMPLETELY SEPERATED FROM THE AIRCRAFT STRUCTURE. WING AND PROP CONTACTED THE GROUND.									
5540		BEECH A100	PWA PT6A28			HINGE 1006000111	CORROSION LOWER RUDDER	15727	8/7/97 CA970815008
(CAN) CORROSION FOUND ON THE LOWER RUDDER HINGE BOLT HOLES. CORROSION ALSO FOUND ON THE BRACKET. ACFT TT: 15,415 HOURS.									
2460		BEECH 200BEECH	PWA PT6A41	HARTZL HCB3TN3		CIRCUIT BREAKER 7277220	OPEN FLAP MOTOR		2/16/98 AU980205
(AUS) FLAP MOTOR CIRCUIT BREAKER INTERMITTENT OPEN CIRCUIT.									
3242		BEECH B200C	PWA PT6A42			BRAKE DISC 101800213	WORN RT OUTB BRAKE		2/2/98 AU980157
(AUS) RH OUTBOARD BRAKE ROTOR CRACKED. RH OUTBOARD WHEEL CRACKED AT BRAKE DRIVE LUG.									
7810		BEECH 200BEECH	PWA PT6A41			EXHAUST STACK 10195001683	CRACKED DEICE TUBE		6/26/97 CA970710002
(CAN) LEFT HAND EXHAUST STACK WAS FOUND CRACKED AT THE WELD BETWEEN THE DEICE TUBE AND THE MAIN BODY OF THE STACK. SUBMITTER RECOMMENDS INSPECTING THIS AREA.									
2710		BEECH 58	CONT IO520C			AILERON SYSTEM	MIS RIGGED AILERON CONTROL		2/18/98 AU980174
(AUS) AILERON CONTROL SYSTEM INCORRECTLY RIGGED.									
3230		BEECH 58	CONT IO520C			TUBE	DAMAGED LT LANDING GEAR		2/18/98 AU980169
(AUS) LH LANDING GEAR DRIVE TUBE CREASED AT INBOARD FITTING.									
7810		BEECH 58	CONT IO520C			EXHAUST SYSTEM	DAMAGED ENGINE COLLECTOR		2/18/98 AU980175
(AUS) EXHAUST ASSEMBLIES (3OFF4) DAMAGED DUE TO SEVERE BULGING.									
7920		BEECH 58	CONT IO520C			HOSE	DETERIORATED ENGINE OIL SYS		2/18/98 AU980176
(AUS) ALL ENGINE HOSES TIME EXPIRED. HOSES WERE NOT CHANGED DURING RECENT ENGINE CHANGE.									
2436		BEECH F90			51530007B	DC REGULATOR 51530007B	FAILED LT GENERATOR	3414	3/12/98 CA970807045
(CAN) CREW REPORTED ELECTRICAL BUS SEPERATION FOLLOWED BY AVIONICS CIRCUIT BREAKERS POPPING. LEFT GENERATOR DEEMED TO BE THE CAUSE AND WAS ISOLATED. MAINTENANCE FOUND THE LEFT HAND GENERATOR CONTROL UNIT FAILED.									
7810		CAMAIR 480	ALLSN 250C20			EDUCTOR 41200451	CRACKED ENG EXHAUST	107	2/24/98 CA980313009
(CAN) EXHAUST EDUCTOR CRACKED IN SEVERAL PLACES BOTH ON FORWARD AND AFT EDGES AROUND DOUBLERS.									



**INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - AIRCRAFT (cont'd)**

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5530		CESSNA 152			04310093	VERTICAL FIN 04310093	SEPARATED BRACKET	10358	5/22/97 CA970612011
(CAN) WHILE INSPECTING THE VERTICAL FIN, A CRACKLING NOISE WAS NOTED. INSPECTION REVEALED A FINE CRACK BETWEEN THE BRACKETS.									
5511		CESSNA 172H				FRONT SPAR	CRACKED HORIZ STAB	2314	7/25/97 CA970731012
(CAN) HORIZONTAL STABILIZER FRONT SPAR AND CENTER SKIN FOUND CRACKED PER CESSNA SEB 94-8. AIRCRAFT TT: 2,318.									
2730		CESSNA 182H	CONT O470R	MCAULY 2A34C66	CESSNA 182H	RIVET 18256315	LOOSE ELEV TORQ TUBE		1/30/98 AU980145
(AUS) ELEVATOR TORQUE TUBE RIVETS LOOSE AND WORKING.									
2730		CESSNA 182H	CONT O470R	MCAULY 2A34C66	CESSNA 182H	CABLE 18256315	MIS ROUTED ELEVATOR CONTROL		1/30/98 AU980153
(AUS) ELEVATOR CONTROL CABLE INCORRECTLY ROUTED.									
2810		CESSNA 182H	CONT O470R	MCAULY 2A34C66	CESSNA 182H	FUEL CELL 18256315	CRACKED LT FUEL		1/30/98 AU980150
(AUS) LH FUEL TANK BLADDER CRACKED AND LEAKING.									
5320		CESSNA 182H	CONT O470R	MCAULY 2A34C66	CESSNA 182H	ANGLE 18256315	CORRODED FUSELAGE		1/30/98 AU980151
(AUS) FUSELAGE ANGLE BADLY CORRODED IN AREA OF WING STRUT ATTACHMENT.									
5330		CESSNA 182H	CONT O470R	MCAULY 2A34C66	CESSNA 182H	RIVET 18256315	DAMAGED AFT FUSELAGE		1/30/98 AU980147
(AUS) RIVETS LOCATED IN REAR FUSELAGE HAD THE RIVET HEADS DAMAGED BY BEING SANDED FLAT.									
5342		CESSNA 182H	CONT O470R	MCAULY 2A34C66	CESSNA 182H	FITTING 18256315	CORRODED STAB ATTACH		1/30/98 AU980146
(AUS) STABILISER ATTACHMENT FITTING LOCATED IN REAR FUSELAGE CORRODED AND RIVETS MISSING.									
5510		CESSNA 182H	CONT O470R	MCAULY 2A34C66	CESSNA 182H	STABILIZER 18256315	CORRODED HORIZONTAL STABI		1/30/98 AU980141
(AUS) HORIZONTAL STABILISER SEVERELY CORRODED.									
5520		CESSNA 182H	CONT O470R	MCAULY 2A34C66	CESSNA 182H	RIVET 18256315	LOOSE ELEVATOR STRUCTU		1/30/98 AU980143
(AUS) ELEVATOR BALANCE TAB RIVETS LOOSE.									
5521		CESSNA 182H	CONT O470R	MCAULY 2A34C66	CESSNA 182H	SPAR 18256315	CRACKED ELEVATOR		1/30/98 AU980144
(AUS) ELEVATOR SPAR AND RIB CRACKED.									
5531		CESSNA 182H	CONT O470R	MCAULY 2A34C66	CESSNA 182H	STABILIZER 18256315	CORRODED VERT STAB SPAR		1/30/98 AU980142
(AUS) VERTICAL STABILIZER SEVERELY CORRODED. FORWARD SPAR CORRODED THROUGH.									

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## INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - AIRCRAFT (cont'd)

3/29/98 To 4/4/98 ISSUE: 98-14 ZAC-327

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5610		CESSNA 182H	CONT O470R	MCAULY 2A34C66	CESSNA 182H	WINDSHIELD 18256315	DETERIORATED COCKPIT		1/30/98 AU980152
(AUS) WINDSCREEN BADLY CRAZED AND OPAQUE.									
5711		CESSNA 182H	CONT O470R	MCAULY 2A34C66	CESSNA 182H	SPAR 18256315	CORRODED LT WING SPAR		1/30/98 AU980149
(AUS) LH WING FORWARD SPAR RIVETS (20OFF) CORRODED AND RIVET HEADS POPPED OFF. LH WING SPAR SEVERELY CORRODED. RH WING FORWARD SPAR RIVETS HAD RIVET HEADS POPPED									
5730		CESSNA 182H	CONT O470R	MCAULY 2A34C66	CESSNA 182H	DOUBLER 18256315	CORRODED WING FLAP BAYS		1/30/98 AU980148
(AUS) INSPECTION PANEL DOUBLERS LOCATED IN FLAP BAYS CORRODED.									
7714		CESSNA U206F	CONT IO520F			TACHOMETER D11125025	STUCK ENG RPM	61	2/12/97 CA970219001
(CAN) ENGINE STARTED NORMAL CONDITIONS. TACHOMETER NEEDLE STUCK AT 800 RPM. WOULD NOT RISE OR FALL.									
2460		CESSNA 208B				WIRE BUNDLE	CHAFFED PITOT STATIC		3/12/98 CA970731023
(CAN) DURING CLIMB, THE CREW NOTED SPARKS AND SMOKE FROM THE LEFT HAND KICK PANEL BY THE PILOT'S KNEE. INVESTGATION FOUND A CHAFED WIRE BUNDLE BY THE ALTERNATE PITOT STATIC SYSTEM.									
2932		CESSNA 208			WIPLINEINC GPP125023	PRESS SWITCH GPP125023	DEFECTIVE HYD PUMP	600	7/23/97 CA970731022
(CAN) DURING NORMAL OPERATIONS, THE GEAR ON THE AMPHIBIOUS FLOATS WAS EXTENDED AND THE CREW NOTED A LONGER THAN NORMAL EXTENSION PERIOD. MAINTENANCE FOUND THAT ONE PUMP ONLY WAS BEING UTILIZED DUE TO A FAULTY PRESSURE SWITCH.									
3230		CESSNA 210L				PIN MS203921C17	SEPARATED NLG UPLOCK		2/11/98 AU980161
(AUS) NOSE LANDING GEAR UPLOCK TO UPLOCK ACTUATOR CLEVIS PIN DISENGAGED. AIRCRAFT LANDED WITH NLG RETRACTED CAUSING MINOR DAMAGE TO THE PROPELLER AND AIRFRAME.									
3230		CESSNA 210L	CONT IO520L	MCAULY D3A32C88		DOWNLOCK HOOK 12416345	STUCK LT MLG		2/11/98 AU980163
(AUS) LH MAIN LANDING GEAR DOWNLOCK HOOK STUCK DUE TO LACK OF LUBRICATION.									
2140		CESSNA 310R	CONT IO520M	MCAULY 3AF32C87	8259JR2	PIPE 748	CORRODED HEATING SYSTEM		2/12/98 AU980190
(AUS) CABIN HEATER FUEL LINE CORRODED AND HOLED ON 90 DEGREE BEND.									
7120		CESSNA 337				MOUNT 145100830	BROKEN REAR ENGINE	4165	7/23/97 CA970812010
(CAN) DURING ANNUAL INSPECTION, FOUND A REAR ENGINE MOUNT BROKEN. LOWER RIGHT HAND TUBE 1.5 INCHES BELOW THE WEB. CRACKED THROUGH THE ENTIRE DIAMETER.									
2750		CESSNA 402C	CONT TSIO520VB	MCAULY 3AF32C505	CESSNA 402C	GEARBOX 511523716	FAILED TE FLAP CONTROL	12546	2/6/98 AU980187
(AUS) FLAP GEARBOX IDLER GEAR TEETH SHEARED OFF.									

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2824		CESSNA 421C	CONT GTSIO520N	MCAULY 3FF32C501		VALVE 74D81	WORN FUEL XSFER VALVE		2/13/98 AU980159
(AUS) INLET FUEL VALVE ASSEMBLY WORN. VALVE FAILED TEST IAW AD/CESSNA400/100A4 DUE TO WORN VALVE STEM.									
2450		CESSNA 441		HARTZL HCB3TN5		SWITCH CM358950	BURNT AC POWER DISTRIB		2/17/98 AU980185
(AUS) NO1 AVIONICS SWITCH/CIRCUIT BREAKER INTERMITTENT FAULT.									
2430		CESSNA 550				CAPACITOR 62581038	SHORTED START/GEN FILTER	2357	12/11/96 CA961218018
(CAN) A NOISE FILTER FOR THE LT STARTER GENERATOR BURNED AND WAS FOUND DURING A PHASE 5 INSPECTION. A SMALL BUT INTENSE FIRE HAD BURNED SURROUNDING WIRING AND RETAINING BRACKET WAS DEFORMED FROM THE BURN. THE OIL FROM THE CAPACITOR COVERED THE WIRING AROUND THE POINT. CAPACITOR, BRACKET AND WIRING REPLACED FOR THE OIL PRESSURE TRANSMITTER. AREA CLEANED AND INSPECTED FOR FURTHER DAMAGE, BUT NONE FOUND. STARTER GENERATOR ALSO INSPECTED FOR DAMAGE, BUT NONE FOUND.									
2750		CESSNA 550	PWA JT15D4			GEARBOX 556517531	FAILED FLAP GR BOX	2396	12/2/96 CA961205019
(CAN) WHILE COMPLYING WITH SB 550-27-16, AND AFTER REMOVAL OF BOTH GEARBOXES, ONE COULD BE TURNED FREELY WITHOUT OUTPUT SHAFT TURNING.									
3010		CESSNA 550			BFGOODRICH 25S7S505910	DE-ICER BOOT 25S7D505910	DELAMINATED RT WING LE	2131	1/5/97 CA970109017
(CAN) PILOT REPORTED RT DE-ICER BOOT WOULD NOT INFLATE WHEN REQUIRED TO REMOVE ICE BUILD-UP ON LEADING EDGE DURING FLIGHT. MAINTENANCE FOUND BOOT INTERNALLY DELAMINATED BETWEEN CELLS AT W.S. 91.0. THIS AREA IS WHERE THE WING FLEXES (SKINS JOINED AT THIS SPOT). NEW BOOT INSTALLED. SUBMITTER STATES THAT THIS IS A COMMON AREA OF FAILURE ON THIS MODEL OF AIRCRAFT.									
3240		CESSNA 500CESSNA				BRAKE	FROZEN RT MAIN		12/31/96 CA970114012
(CAN) THE AIRCRAFT LANDED AND THE RT MAIN WHEEL SKIDDED AND EVENTUALLY BLEW. INVESTIGATION REVEALED THAT THE RT BRAKE HAD ICED UP AND SUBSEQUENTLY FROZE UP. THE AIRPORT OF DEPARTURE HAD SOME SNOW ON THE RUNWAY AND CAUSED THE ICING. AIRCRAFT MOVED TO HANGAR FOR WARMING AND BRAKE FREELY ROTATED.									
3260		CESSNA 550	PWA JT15D4			SWITCHES 65430087	DEFECTIVE GEAR UPLOCK	2467	10/15/96 CA961028007
(CAN) GEAR SELECTED UP, RED IN TRANSIT LIGHT STAYED ON AND HYDRAULIC PRESSURE LIGHT ON. NOSE RETRACTED, BUT MAIN DID NOT. HYDRAULIC LIGHT THEN WENT OUT. BOTH MAIN LANDING GEAR DOWNLOCK GREENS CAME ON. GEAR SELECTED DOWN PRIOR TO LANDING AND ALL 3 GEARS DOWN AND LOCKED. INVESTIGATION FOUND THAT BOTH UPLOCK SWITCHES HAD A HIGH RESISTANCE ACROSS CONTACTS. SWITCHES SENT TO CESSNA FOR CHECK. PART TC: 2,780.									
7830		CNDAIR CL6012A12	GE CF341A			PNEUMATIC DR UNI 12675862	MIS ADJUSTED LT ENGINE		1/24/97 CA970128006
(CAN) LEFT THRUST REVERSER PDU UNLOCKED, LIGHT REMAINED ON WHEN THRUST REVERSER STOWED. FLEX LOCK FOUND DISENGAGED. INTERNAL TIMING FOUND OUT OF LIMITS. REPLACED PNEUMATIC DRIVE UNIT.									
5711		DHAV DHC6300	PWA PT6A27			SPAR C6W1056	CORRODED SPAR CAPS		2/9/98 24349 CA980311013
(CAN) DURING REPLACEMENT OF LEFT AND RIGHT LOWER WING SKINS, LEVEL 2 CORROSION WAS FOUND ON THE FORWARD SPAR CAPS IN THE AREAS BEHIND BOTH LEFT AND RIGHT NACELLE FIREWALLS. THESE AREAS CANNOT BE VISUALLY INSPECTED WITHOUT REMOVAL OF THE NACELLES. LEFT SPAR CAP REPLACED. RIGHT SPAR CAP REPAIRED. PART TC: 30,073. ACFT TT: 24,348 HOURS.									
5531		FLEET FLEET80				VERT STAB	CRACKED LEADING EDGE	13069	6/16/97 CA970709003
(CAN) LEADING EDGE 4130 TUBE OF VERTICAL STABILIZER FOUND CRACKED THROUGH JUST ABOVE THE SOCKET ON THE FUSELAGE.									

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## INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - AIRCRAFT (cont'd)

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3230		GULSTM 690A			AEROC 540084501	ROLL PIN	SHEARED GEAR HANDLE	5521	10/11/96 CA961112013
*****	(CAN) LANDING GEAR FAILED TO EXTEND ON APPROACH. LANDING GEAR HANDLE MOVED BUT HYDRAULIC VALVE LEVER DID NOT MOVE. LANDING GEAR EXTENDED WHEN HYDRAULIC VALVE WAS OPERATED IN THE MANUAL MODE. MAINTENANCE INVESTIGATION REVEALED THE ROLL PIN OF THE LANDING GEAR CONTROL ASSEMBLY WAS NOT CORRECTLY INSTALLED WHICH CAUSED IT TO SHEAR.								
5610		GULSTM 690D				WINDSHIELD 3600431255	CRACKED COCKPIT	361	2/10/98 CA980311029
	(CAN) THE WINDSHIELD OUTER GLASS CRACKED WHILE ON DESCENT. ACFT TT: 9,794 HOURS.								
3230		MTSBSI MU2B30		HARTZL HCB3TN5		LANDING GEAR	FAILED LANDING GEAR RET		1/21/98 AU980181
	(AUS) LANDING GEAR FAILED TO RETRACT. SYSTEM WORKED NORMALLY DURING GROUND CHECKS WHEN FOLLOWING RESETTNG OF THE EMERGENCY EXTENSION SYSTEM. SUSPECT CAUSED BY MOVEMENT OF THE EMERGENCY EXTENSION HANDLE DURING MAINTENANCE.								
2520		PIPER PA31350		HARTZL HCE3YR2		SPACER 4669523	MISSING PASSENGER SEAT		2/5/98 AU980112
	(AUS) PASSENGER SEATS INSTALLED WITHOUT SPACERS CAUSING DAMAGE TO THE MOUNTING PLATES AND SEAT LOCK MECHANISM.								
2910		PIPER PA31350		HARTZL HCE3YR2		HYDRAULIC SYSTEM	LOW QUANTITY HYDRAULIC MAIN		2/11/98 AU980164
	(AUS) HYDRAULIC FLUID QUANTITY LOW. LANDING GEAR WOULD NOT FULLY EXTEND.								
2913		PIPER PA31350		HARTZL HCE3YR2		PUMP 2680210	FAILED LT ENGINE HYD		2/5/98 AU980114
	(AUS) LH ENGINE DRIVEN HYDRAULIC PUMP FAULTY.								
3230		PIPER PA31350		HARTZL HCE3YR2		DOWNLOCK HOOK 4098301	BINDING RT MLG		2/11/98 AU980184
	(AUS) RH MAIN LANDING GEAR DOWNLOCK HOOK BINDING.								
3230		PIPER PA31350				DOWNLOCK	DIRTY RT GEAR		8/2/97 CA970815015
	(CAN) RIGHT HAND GEAR DOWNLOCK FOUND DIRTY AND WOULD NOT OPERATE FREELY.								
3230		PIPER PA31350		HARTZL HCE3YR2		SIDE BRACE 574442	CRACKED LT LANDING GEAR		2/3/98 AU980166
	(AUS) LH MAIN LANDING GEAR FORWARD SIDE BRACE CRACKED. FOUND DURING INSPECTION IAW AD/PA31/114 AMDT3.								
3230		PIPER PA31350		HARTZL HCE3YR2		SIDE BRACE 402773	CRACKED LANDING GEAR RET		2/3/98 AU980194
	(AUS) RH MAIN LANDING GEAR FORWARD SIDE BRACE CRACKED. FOUND DURING INSPECTION IAW AD/PA31/114 AMDT3.								
3250		PIPER PA31350		HARTZL HCE3YR2		ARM 44386000	CRACKED NLG STEERING		2/5/98 AU980119
	(AUS) NOSE WHEEL STEERING ARM CRACKED.								

\*\*\*\*\* DENOTES SIGNIFICANT OCCURRENCE

**INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - AIRCRAFT (cont'd)**

3/29/98 To 4/4/98 ISSUE: 98-14 ZAC-327

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
5312		PIPER PA31	LYC TIO540A1A	HARTZL HCE3YR2		BULKHEAD 5269401	CRACKED FUSELAGE		2/4/98 AU980193
(AUS) FUSELAGE RH FRONT SPAR ATTACHMENT BULKHEAD CRACKED. BULKHEAD, CHANNEL PNO 40603-02 AND REINFORCEMENT PLATE PNO 53016 WERE REPLACED. FOUND DURING REPAIR OF CRACKED FUSELAGE SKIN.									
5520		PIPER PA31350		HARTZL HCE3YR2		BEARING 452386	WORN LT & RT ELEV		2/5/98 AU980124
(AUS) LH AND RH ELEVATOR HINGE BEARINGS WORN.									
5540		PIPER PA31350		HARTZL HCE3YR2		BEARING 452386	WORN RUDDER HINGE		2/5/98 AU980125
(AUS) RUDDER HINGE BEARINGS WORN.									
6120		PIPER PA31350		HARTZL HCE3YR2		CABLE 2489417	BROKEN PROP CONTROL		2/5/98 AU980120
(AUS) RH PROPELLER PITCH CONTROL CABLE FAILED.									
7120		PIPER PA31350	LYC TIO540J2BD	HARTZL HCE3YR2		MOUNT 4000707	CORRODED ENGINE		2/5/98 AU980118
(AUS) RH ENGINE MOUNTS BADLY CORRODED.									
7160		PIPER PA31350	LYC TIO540J2BD	HARTZL HCE3YR2		CLIP 78164	SEPARATED ENGINE AIR INTAK		2/5/98 AU980113
(AUS) TURBOCHARGER BYPASS DOOR MAGNETIC CATCH SEPARATED FROM MOUNTING RUBBER. THE CATCH WAS REATTACHED USING `SILASTIC`.									
7160		PIPER PA31350	LYC TIO540J2BD	HARTZL HCE3YR2		DOOR 5491602	BROKEN ENG AIR INTAKE		2/5/98 AU980117
(AUS) ENGINE AIR INTAKE ALTERNATE AIR DOOR RETURN SPRING BROKEN. DOOR HINGE SHAFT AND BUSHES EXCESSIVELY WORN.									
7160		PIPER PA31350	LYC TIO540J2BD	HARTZL HCE3YR2		DUCT 5491602	BROKEN ENG AIR INTAKE		2/5/98 AU980121
(AUS) RH ENGINE ALTERNATE AIR DOOR RETURN SPRING BROKEN. DOOR AXLESHAFT AND BUSHINGS BADLY WORN.									
(End of INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - AIRCRAFT)									

**INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS****3/29/98 - 4/4/98 ISSUE: 98-14 ZAC-327**

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
2140		BELL 206B	ALLSN 250C20B			BLOWER ASSY C241500E	VIBRATION HEATER	1/20/97 15	CA970311083
(CAN) BLOWER ASSY DEVELOPED A VIBRATION SHORTLY AFTER INSTALLATION. BUTTERFLY VALVE WAS CRACKED AND SQUIRREL CAGE OF BLOWER WAS LOOSE DUE TO BEARING FAILURE.									
2810		BELL 206B	ALLSN 250C20			DOUBLER	DAMAGED FUEL CELL	14691	7/5/96 CA970311017
(CAN) FUEL CELL DOUBLERS DAMAGED.									
2822		BELL 206B	ALLSN 250C20			CIRCUIT BREAKER 7274210	WORN BOOST PUMP	1/24/97	CA970311084
(CAN) FORWARD BOOST PUMP INTERMITTANT. NOT SWITCHING ON. CIRCUIT BREAKER WORN.									
2842		BELL 206B	ALLSN 250C20			SENDING UNIT EA470B3588	FAILED FUEL QTY	1/16/97	CA970311081
(CAN) FUEL SENDING UNIT SENDING ERRONEOUS READINGS. DROPPING FROM 15-20 GALS TO ZERO.									
5210		BELL 206B	ALLSN 250C20			LINK 206031524005	WORN DOOR	16645	2/26/97 CA970327024
(CAN) DOOR LATCH OPENING LINK WAS CHAFING ON NUTPLATE SECURING PLATE COVER P/N 206-031-501-104. LINK WAS SUBSTANTIALLY DAMAGED TO THE POINT OF BEING WORN ALL THE WAY THROUGH.									
5310		BELL 206L	ALLSN 250C20B			SUPPORT 206030111003	CORRODED AIRFRAME	1/31/97	CA970311087
(CAN) EXTENSIVE CORROSION OF SUPPORT.									
5320		BELL 206B	ALLSN 250C20			SUPPORT 206031301023	CRACKED UPPER RADIUS	11/25/96	CA970311073
(CAN) SUPPORT WAS CRACKED IN FORWARD UPPER RIGHT HAND RADIUS. NO CRACKS ALLOWED IN THIS AREA. THIS DAMAGE WAS VISIBLE ONLY WITH FUEL CELL REMOVED. AIRCRAFT TT: 15,819 HOURS.									
5320		BELL 206B	ALLSN 250C20			SUPPORT 206031301023	CRACKED UPPER RT RADIUS	11/21/96	CA970311066
(CAN) SUPPORT WAS CRACKED IN FORWARD UPPER RIGHT HAND RADIUS. NO CRACKS ALLOWED IN THIS AREA. DAMAGE ONLY VISIBLE WITH FUEL CELL REMOVED. AIRCRAFT TT: 14,949 HOURS.									
5320		BELL 206B	ALLSN 250C20			SUPPORT 206033173001	CORRODED FUSELAGE	11/21/96	CA970311065
(CAN) SUPPORT CORRODED BEYOND REPAIRABLE LIMITS.									
5320		BELL 206L	ALLSN 250C20B			SUPPORT 206033311001	CRACKED ENGINE AREA	1/31/97	CA970311088
(CAN) CRACKS ON BOTH SIDES OF CASTING.									
6310		BELL 206B	ALLSN 250C20B		BELL 206B3	BEARING 206040205005	FAILED ENGINE/TRANSMISS	1/7/98 1979	AU980202
(AUS) TRANSMISSION FREE WHEEL ASSEMBLY FORWARD BEARING PNO206-040-205-005 AND SHAFT BEARING SURFACE PNO 206-040-222-005 FAILED.									

\*\*\*\*\* DENOTES SIGNIFICANT OCCURRENCE

## INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS (cont'd)

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6310		BELL 206B	ALLSN 250C20			FREEWHEEL UNIT 206040230025	LEAKING M/R	10300 53	3/11/97 CA970327018
(CAN) FRONT SEAL OF FREEWHEEL UNIT LEAKING.									
6330		BELL 206B	ALLSN 250C20			PYLON SUPPORT 206031589001	LOOSE RT SUPPORT	1450	2/4/97 CA970311089
(CAN) BEARING LOOSE, TEFLON COMING OFF BEARING.									
7100		BELL 206L	ALLSN 250C20B			HOSE ASSY 70009H000V210A	CORRODED ENGINE		1/31/97 CA970311085
(CAN) HOSE ASSEMBLY HAS CORROSION AT THE END FITTING.									
7311		BELL 206B	ALLSN 250C20			COOLER 8534998	CORROSION FUEL/OIL		1/15/97 CA970311080
(CAN) PRIOR TO INSTALLATION, THE INSPECTION REVEALED CORROSION AT BOTH THE INLET AND OUTLET PORTS, AS WELL AS A SUBSTANTIAL AMOUNT ON THE BYPASS VALVE.									
5302		BELL 212				FITTING 212030161001	CRACKED TAILBOOM	11578	2/27/97 CA970421007
(CAN) A CRACK WAS FOUND RADIATING FROM THE BOLT HOLE OF THE TAILBOOM MOUNTING BOLT. CLOSER INSPECTION REVEALED THAT THE FITTING WAS ALMOST COMPLETELY BROKEN. THE FITTING WAS THE LOWER LEFT HAND.									
7110		BELL 412	PWA PT6T3			COWLING 212060805121	DEPARTED LT SIDE	1	10/7/97 CA971015065
(CAN) EVERYTHING NORMAL ON TEST FLIGHT. AFTER SHUTDOWN IT WAS NOTED THAT LEFT COWLING WAS MISSING. A FASTENER REQUIRED PER ASB 412-95-87 HAD NOT BEEN INSTALLED. THE LEFT STABILIZER WAS DAMAGED AT ITS JUNCTION WITH TAILBOOM BY COWL.									
7230		BOLKMS BK117B2	LYC LTS101750B1		LYC LTS101750	ENGINE	STALLED ENG COMPRESSOR		1/25/98 AU980127
(AUS) NO1 ENGINE SUFFERED A COMPRESSOR STALL.									
6220		HUGHES 269C				DAMPER 269A12903	DELAMINATED MAIN ROTOR HEAD		2/6/98 AU980167
(AUS) MAIN ROTOR ELASTOMERIC DAMPERS FAULTY. AIRCRAFT HAD SUFFERED A HARD LANDING/SUDDEN STOPPAGE APPROXIMATELY 150 HOURS PREVIOUSLY. INSPECTION THEN FOUND NIL DEFECTS BUT SINCE THAT TIME THE AIRCRAFT HAD DEVELOPED A VIBRATION AND AN INSPECTION HAD FOUND ONE DAMPER DELAMINATED AND ONE DAMPER OUT OF LIMITS. THE THIRD DAMPER FAILED THE LOAD/STRETCH TEST.									
3270		HUGHES 369D	ALLSN 250C20B			REAR STRUT 369H600151	CRACKED DRAG BRACE		12/16/96 CA970311068
(CAN) LOOSE INNER FITTING, WORKING RIVETS AND CRACKED AROUND LOWER HOLE OF LANDING GEAR DRAG BRACE HOLE.									
3270		HUGHES 369D	ALLSN 250C20B			GEAR LEG 369H600152	CRACKED R/H AFT		1/17/97 CA970311082
(CAN) REMOVED FOR "SMOKING" RIVETS ON END CAP. FOUND CRACK EXTENDING FROM FORE/AFT STRUT ATTACHMENT HOLE.									
6220		HUGHES 369D	ALLSN 250C20B			HUB 369D21201	CRACKED LINKS	1848 1240	9/6/96 CA970421036
(CAN) CRACKS FOUND ON RED AND GREEN LOWER LEAD LAG LINKS. CRACKS RADIATED FROM TRAILING EDGE BOLT BUSHING TO THE MIDDLE OF LINK. APPROX 2 INCHES LONG.									

\*\*\*\*\* DENOTES SIGNIFICANT OCCURRENCE

## INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS (cont'd)

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7250		HUGHES 369D	ALLSN 250C20B		6898735	BEARING 6871505	FAILED NR 5 BEARING	9/25/96 197	CA961112005
(CAN) DURING FLIGHT, CHIP LIGHT ILLUMINATED AND POWER LOSS OCCURRED. AUTO ROTATION CARRIED OUT.									
3242		SKRSKY S76A	ALLSN 250C30			BRAKE 5007555	FROZEN WHEEL	3/14/97 CA970407015	
(CAN) DURING NORMAL SHUTDOWN, A/C STARTED TO ROLL BACKWARDS. FULL BRAKES APPLIED, BUT A/C CONTINUED TO TURN. SUSPECT BRAKES FROZE AFTER BEING PULLED FROM HANGAR IN THE MORNING THROUGH SNOW.									
2312		SNIAS AS350B	TMECA ARRIEL1B			VHF COMM 064105430	INTERMITTANT DISPLAY	2/26/97 109	CA970327023
(CAN) LED LEVEL INTERMITTANT, UNABLE TO SEE DISPLAY IN DAYLIGHT.									
2312		SNIAS AS350B	TMECA ARRIEL1B			TRANSCIEVER 9210121	FAILED COCKPIT	2/19/97 CA970327026	
(CAN) VHF-FM TRANSCIEVER NO SIDE TONE, UNABLE TO ADJUST.									
2842		SNIAS AS350B	TMECA ARRIEL1B			TRANSMITTER 647510033	STICKING FUEL QTY	1/15/97 CA970311079	
(CAN) FLOAT STICKING, NO INDICATION OF LOW FUEL WARNING AT APPROPRIATE LEVEL.									
2842		SNIAS AS350B	TMECA ARRIEL1B			TRANSMITTER 647510033	STICKING FUEL QTY	1/15/97 CA970327027	
(CAN) FUEL QUANTITY INDICATOR WOULD ONLY READ 20-50 PERCENT OF TOTAL FUEL. FLOAT ASSEMBLY DIFFICULT TO MOVE, LOW LEVEL WARNING WOULD NOT WORK AT LOW LEVELS IN TANK.									
5320		SNIAS AS350B	TMECA ARRIEL1B			CROSSBEAM 350A38021003	CRACKED MGB CROSSBEAM	2/7/97 1166	CA970311091
(CAN) MAIN GEARBOX BI-DIRECTIONAL CROSSBEAM FOUND CRACKED DURING INSPECTION AS PER AD 96-156-07(B).									
6210		SNIAS AS350B1				BLADE 355A11002004	CRACKED MAIN ROTOR	2/26/97 3114	CA970421008
(CAN) MAIN ROTOR BLADE FOUND WITH CHORDWISE CRACK. CRACK 35.43" OUTBOARD OF ROOT.									
6220		SNIAS AS350B	TMECA ARRIEL1B			BOLT 350A37124420	CORRODED MAIN ROTOR	1/27/97 1538	CA970421040
(CAN) MAIN ROTOR HEAD BOLTS P/N 350A37-1244-20 AND 350A37-1245-20 FOUND CORRODED IN THRUST AREAS WHERE DRY LUBRICANT HAD WORN OFF.									
6220		SNIAS AS350BA	TMECA ARRIEL1B			STARFLEX 350A31190703	CRACKED TRAILING EDGE	4/2/97 620	CA970409002
(CAN) STARFLEX ASSEMBLY FOUND CRACKED ON TRAILING EDGE OF ARM. PART TC: 2,102.									
6240		SNIAS AS350B	TMECA ARRIEL1B			TRANSMITTER 9580113720	ERRATIC M/R TORQUE	2/25/97 54	CA970327025
(CAN) TORQUE TRANSMITTER PRODUCING ERRATIC TORQUE GAUGE READINGS.									
6320		SNIAS AS350B	TMECA ARRIEL1B			INPUT SEAL BABDRR	LEAKING MGB	3/17/97 2800	CA970327016
(CAN) INPUT SEAL LEAKING, HYDRAULIC BELT CHANGED, OIL SOAKED.									

\*\*\*\*\* DENOTES SIGNIFICANT OCCURRENCE



## INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS (cont'd)

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6322		SNIAS AS350B	TMECA ARRIEL1B			FAN 95544576	BROKEN OIL COOLER		3/6/97 CA970327019
(CAN) BROKEN VANES ON OIL COOLER FAN CAUSED VIBRATION THROUGH AIRFRAME.									
6340		SNIAS AS350B	TMECA ARRIEL1B			TRANSMITTER 9580113720	ERRONEOUS M/R	1225	1/9/97 CA970421037
(CAN) TORQUE GAUGE SPINS BACKWARDS. GAUGE EXORCISED AND TRANSMITTER CHANGED.									
6420		SNIAS AS350B2				HINGE 350A33215300	DELAMINATED TAIL ROTOR	83	4/15/97 CA970421020
(CAN) TAIL ROTOR LAMINATED HINGE FOUND WITH EXCESSIVE CRACKS AND DELAMINATIONS.									
6420		SNIAS AS350BA	TMECA ARRIEL1B			HINGE 350A33215300	DELAMINATED TAIL ROTOR	362	4/2/97 CA970409001
(CAN) OVER A PERIOD OF 5 HOURS, PILOT NOTED AN INCREASED VIBRATION. INSPECTION REVEALED DELAMINATED ELASTOMERS ON LAMINATED HINGE OF TAIL ROTOR. PART TC: 1,208.									
6420		SNIAS AS350BA	TMECA ARRIEL1B			HINGE 350A33215300	DELAMINATED TAIL ROTOR	47	4/11/97 CA970421021
(CAN) TAIL ROTOR LAMINATED HINGE FOUND WITH EXCESSIVE CRACKS AND DELAMINATIONS.									
6520		SNIAS AS350BA	TMECA ARRIEL1B			LAMINATED HINGE 350A33215300	WORN T/R		9/9/96 CA970311013
(CAN) LAMINATED HINGE DAMAGED AND WORN.									
6720		SNIAS AS350B	TMECA ARRIEL1B			PITCH CHANGE ROD 350A33214501	CORRODED T/R		3/6/97 CA970327021
(CAN) ELASTOMER BUSHINGS IN TAIL ROTOR PITCH CHANGE ROD END FOUND CORRODED, CRACKED, AND DELAMINATED.									
7311		SNIAS AS350B	TMECA ARRIEL1B			OIL COOLER RH2113	DIRT INTERNAL		9/13/96 CA970311011
(CAN) DUST CAPS WERE MISSING WHEN RECEIVED FROM OVERHAUL CONTRACTOR. MUCH DUST EJECTED FROM COOLER WHEN COMPRESSED AIR BLOWN THROUGH.									
7714		SNIAS AS350B	TMECA ARRIEL1B			TACHOMETER BOX 0177555170	SHORTED ENG RPM	293	8/24/96 CA961021007
(CAN) TACH BOX FAILED WHILE ON VERY SHORT FINAL TO MOUNTAIN TOP LANDING AT 8000 FEET, AND 20 DEGREES CELSIUS. CAUSED ENGINE BLEED VALVE NOT TO CLOSE THEREBY ENGINE COMPRESSOR EXCEEDED NORMAL RED LINE. THE ENGINE WAS NOT ABLE TO MAINTAIN ROTOR RPM AND IT RAPIDLY DECAYED.									
7722		SNIAS AS350B	TMECA ARRIEL1B			INDICATOR 56265220	STICKING ENG T4		2/28/97 CA970327022
(CAN) NEEDLE STICKING AT 700 +/- 50 DEGREES.									
7810		SNIAS AS350B	TMECA ARRIEL1B			CLAMP 029280874	BROKEN ENGH EXH RT TANG	80	2/6/97 CA970421039
(CAN) ENGINE EXHAUST MOUNTING CLAMP TANG ON RIGHT HAND SIDE BROKEN.									

(End of INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS)

**INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - ENGINES****3/29/98 - 4/4/98 ISSUE: 98-14 ZAC-327**

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8530		BEECH 35C33	CONT IO470K	MCAULY 2A36C23	CONT O470K	VALVE G46754	LEAKING NR 3 CYL EXH		2/16/98 AU980158
(AUS) NO1 CYLINDER EXHAUST VALVE LEAKING AND VALVE GUIDE WORN (STILL WITHIN LIMITS). NO3 CYLINDER INLET VALVE LEAKING.									
8530		BEECH 76	LYC LO360A1G6			PISTON SL75089STD	CRACKED RECIP ENG		2/20/98 AU980188
(AUS) PISTON CRACKED.									
7311		BELL 206B	ALLSN 250C20			COOLER 8534998	CORROSION FUEL/OIL		1/15/97 CA970311080
(CAN) PRIOR TO INSTALLATION, THE INSPECTION REVEALED CORROSION AT BOTH THE INLET AND OUTLET PORTS, AS WELL AS A SUBSTANTIAL AMOUNT ON THE BYPASS VALVE.									
7230		BOLKMS BK117B2	LYC LTS101750B1		LYC LTS101750	ENGINE	STALLED ENG COMPRESSOR		1/25/98 AU980127
(AUS) NO1 ENGINE SUFFERED A COMPRESSOR STALL.									
7322		CESSNA 150M	CONT O200A	MCAULY 1A102OCM	FACET CARBURETTOR	PLUNGER 194593	DAMAGED CARB ACCEL PUMP		1/31/98 AU980138
(AUS) CARBURETTOR ACCELERATOR PUMP PLUNGER LEATHER CAP TORN IN TWO PLACES.									
8550		CESSNA 172L	LYC O320E2D			OIL PUMP 76354	CRACKED ENG OIL	3192 652	3/12/98 CA960223013
(CAN) AFTER 2.5 HOUR FLIGHT, PILOT REPORTED OIL PRESSURE CREEPING DOWN DURING DESCENT. GROUND RUN CARRIED OUT AND PRESSURE MAINTAINED AT 70 TO 75 PSI. WHILE COMPASS SWING CARRIED OUT, PRESSURE DROPPED OFF AGAIN. ENGINE REMOVED FOR OVERHAUL. REPORT FROM O/H SHOP STATED THAT OIL PUMP WAS CRACKED INTERNALLY.									
8530		CESSNA 182H	CONT O470R	MCAULY 2A34C66	CONT O470	ENGINE 131324	WORN EXH VLV GUIDES		1/30/98 AU980140
(AUS) ENGINE EXHAUST VALVE GUIDES BADLY WORN. PISTON AND PISTON RINGS BADLY WORN. PISTON PINS AND CONNECTING ROD BUSHES WORN. OIL FILTER ALMOST COMPLETELY BLOCKED WITH CARBON. FUEL STRAINER LEAKING.									
8500		CESSNA 210M	CONT IO520L	MCAULY D3A32C88		ENGINE	VIBRATES POWER SECT		2/9/98 AU980139
(AUS) ENGINE VIBRATION FELT THROUGH FLOOR AND RUDDER PEDALS.									
7250		EMB EMB110P1	PWA PT6A34	HARTZL HCB3TN3		COVER 3012264	INCORRECT FIT TURBINE SECTION		1/18/98 AU980195
(AUS) NO2 BEARING COVER INCORRECTLY SEATED. PERSONNEL/MAINTENANCE ERROR.									
7250		HUGHES 369D	ALLSN 250C20B		6898735	BEARING 6871505	FAILED NR 5 BEARING	197	9/25/96 CA961112005
(CAN) DURING FLIGHT, CHIP LIGHT ILLUMINATED AND POWER LOSS OCCURRED. AUTO ROTATION CARRIED OUT.									
7314		PARTEN P68B	LYC IO360A1B6	HARTZL HCC2YK2		PUMP LW15473	FAILED ENGINE FUEL		2/12/98 AU980182
(AUS) ENGINE FUEL PUMP DRIVE LEVER FAILED ACROSS PIVOT PIN HOLES. LEVER SECTION WITHIN THE PUMP HAS SECONDARY CRACKING AND IS SLIGHTLY BOWED OUTWARDS. BROKEN PORTION OF LEVER FOUND IN THE ENGINE SUMP.									

\*\*\*\* DENOTES SIGNIFICANT OCCURRENCE

## INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - ENGINES (cont'd)

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7314		PIPER PA31350	LYC TIO540J2BD	HARTZL HCE3YR2		PUMP LW13918	MALFUNCTION ENGINE FUEL		2/5/98 AU980115
(AUS) RH ENGINE DRIVEN FUEL PUMP LOW PRESSURE OUTPUT.									
7414		PIPER PA31350	LYC LTIO540J2BD	HARTZL HCE3YR2	BENDIX D6RN3200	MAGNETO 8442094	SHORTED RT ENG LT MAG		2/1/98 AU980154
(AUS) RH ENGINE LH MAGNETO PRIMARY LEAD SHORT CIRCUITED TO MAGNETO CASE.									
8500		PIPER PA31350	LYC TIO540J2BD	HARTZL HCE3YR2		ENGINE	DETERIORATED LT ENG		2/5/98 AU980123
(AUS) LH ENGINE CONDITION POOR. ALL ELECTRICAL WIRES, IGNITION HARNESSSES, HYDRAULIC AND OIL HOSES NOT SECURED. NO GROMMETS FOR PROTECTION OF WIRES AND HOSES WHERE THEY PASS THROUGH BAFFLES.DRAIN LINES FOR FUEL PUMP, HYDRAULIC PUMP AND WASTE GATE MISSING. CHT PROBE FITTED TO THE INCORRECT CYLINDER.									
8500		PIPER PA31350	LYC TIO540J2BD	HARTZL HCE3YR2		ENGINE	DETERIORATED RT ENG		2/5/98 AU980122
(AUS) RH ENGINE CONDITION POOR. ALL ELECTRICAL WIRES, IGNITION HARNESSSES, HYDRAULIC AND OIL HOSES NOT SECURED. NO GROMMETS TO PROTECT HOSES AND WIRING WHERE THEY PASS THROUGH BAFFLES. DRAIN LINES AND FITTINGS FOR FUEL PUMP, HYDRAULIC PUMP AND WASTE GATE MISSING. CHT PROBE FITTED TO THE INCORRECT CYLINDER.									
8520		PIPER PA31325	LYC TIO540F2BD			ENGINE	FRICTION NR 1 ENGINE		2/5/98 CA980311012
(CAN) UNKNOWN CAUSE OF FRICTION IN THE CRANKCASE. ENGINE SENT FOR INVESTIGATION AND REPAIR.									
8530		PIPER PA31350	LYC TIO540J2BD	HARTZL HCE3YR2		CYLINDER LW13918	DEFECTIVE LT ENG NR 2-3		2/5/98 AU980116
(AUS) LH ENGINE NO2 AND NO3 CYLINDER HAD LOW COMPRESSION. NO2 CYLINDER PISTON DAMAGED. AFT THROUGH BOLTS EXCESSIVELY LOOSE. ENGINE HAD COMPLETED 14 HOURS OPERATION SINCE A BULK STRIP.									
7311		SNIAS AS350B	TMECA ARRIEL1B			OIL COOLER RH2113	DIRT INTERNAL		9/13/96 CA970311011
(CAN) DUST CAPS WERE MISSING WHEN RECEIVED FROM OVERHAUL CONTRACTOR. MUCH DUST EJECTED FROM COOLER WHEN COMPRESSED AIR BLOWN THROUGH.									
(End of INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - ENGINES)									

**INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - COMPONENTS**

**3/29/98 - 4/4/98    ISSUE: 98-14    ZAC-327**

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
3416		BEECH 95B55	CONT IO470L	MCAULY 2AF34C55		ENCODER AK350	FAILED ALTIMETER		1/18/98 AU980168
(AUS) ALTITUDE ENCODER FAULTY. PERSONNEL/MAINTENANCE ERROR.									
2312		SNIAS AS350B	TMECA ARRIEL1B			TRANSCEIVER 9210121	FAILED COCKPIT		2/19/97 CA970327026
(CAN) VHF-FM TRANSCEIVER NO SIDE TONE, UNABLE TO ADJUST.									
2312		SNIAS AS350B	TMECA ARRIEL1B			VHF COMM 064105430	INTERMITTANT DISPLAY		2/26/97 109 CA970327023
(CAN) LED LEVEL INTERMITTANT, UNABLE TO SEE DISPLAY IN DAYLIGHT.									
(End of INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - COMPONENTS)									

**INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - PROPELLERS**

3/29/98 - 4/4/98    ISSUE: 98-14    ZAC-327

ATA	REG. NO	ACFT MAKE	ENG MAKE	PROP MAKE	COMP MFG	PART NAME	PART COND	TT	DIFF. DATE
OPER	SERIAL NO	ACFT MODEL	ENG MDL	PROP MDL	COMP MDL	PART NUMBER	PART LOC.	TSO	OPER CONT NO

(There was no data for this report.)

(End of INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - PROPELLERS)



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

## **SERVICE DIFFICULTY REPORT SUMMARY**

### **GENERAL AVIATION - INDEX**



The following information provides a tally of the Service Difficulty Reports (SDR's) contained in this weeks issue of the General Aviation SDR Summary. The totals represent only a summation of the SDR's that were submitted to the FAA, Aviation Data Systems Branch, AFS-620, and processed in time for inclusion in the Summary. The first table is a tally of the number of SDR's submitted through the indicated Flight Standards District Office (FSDO). The second table sorts the SDR's by the aircraft or equipment make and model. The heading at the top of each table provides a two digit Joint Aircraft System/Component (JASC) code grouping (e.g., JASC codes 1100 thru 1800 are represented by the heading labeled 11-18) which categorizes in general, the problem areas for each reported discrepancy.

The Flight Standards Service Difficulty Program objective is to achieve prompt and appropriate correction of conditions adversely affecting continued airworthiness of aeronautical products. This is accomplished by the collection of Service Difficulty and Malfunction or Defect Reports. SDR's are consolidation and collation into common data base where they are analyzed for trends, problems, and alert information. This information is then disseminated to the appropriate segments of the aviation community and to other FAA offices.

The number of SDR's submitted is not an indicator of the mechanical reliability or fitness of an air carrier's aircraft fleet and should not be used as such. The air carriers certificate holding office has the primary responsibility for planning, programming evaluations, and assessing the performance of operators. Questions regarding an air carrier's fleet performance should be directed to the appropriate Flight Standards District Office, Certificate Management Office, or Certificate Management Unit.

**GENERAL AVIATION SUMMARY INDEX BY DISTRICT OFFICE****3/29/98 To 4/4/98    ISSUE: 98-14    ZAC-327**

DISTRICT OFFICE		SDR TOTALS BY FAA ATA SYSTEM CHAPTER								TOTAL
		11-18	21-29	30-38	45-49	51-57	61-67	71-79	80-85	
AU	S	0	12	10	0	13	3	12	7	57
CA		0	13	9	0	14	15	13	2	66
FS	01	0	0	0	0	0	1	0	0	1
GL	11	0	0	2	0	0	0	0	0	2
NM	09	0	0	0	0	0	1	0	0	1
SO	17	0	0	0	0	0	1	0	0	1
SW	03	0	45	32	0	15	42	33	0	167
SW	05	0	0	0	0	0	0	1	0	1
SW	09	0	0	0	0	0	1	1	0	2
WP	01	0	1	0	0	0	1	0	0	2
WP	07	0	1	0	0	0	0	0	0	1
WP	23	0	0	0	0	0	0	1	0	1
WP	27	0	1	0	0	0	0	0	0	1
<b>TOTALS</b>		<b>0</b>	<b>73</b>	<b>53</b>	<b>0</b>	<b>42</b>	<b>65</b>	<b>61</b>	<b>9</b>	<b>303</b>

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(End of GENERAL AVIATION SUMMARY INDEX by DISTRICT OFFICE Report)

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**GENERAL AVIATION SUMMARY INDEX by MANUFACTURER MAKE and MODEL****3/29/98 To 4/4/98    ISSUE: 98-14    ZAC-327**

AIRCRAFT MAKE	AIRCRAFT MODEL	SDR TOTALS BY FAA ATA SYSTEM CHAPTER								TOTAL
		11-18	21-29	30-38	45-49	51-57	61-67	71-79	80-85	
AEROSP	AS355F	0	0	0	0	0	1	0	0	1
AEROSP	AS355F1	0	0	0	0	0	2	0	0	2
BBAVIA	8GCBC	0	0	1	0	0	0	0	0	1
BEECH	200BEECH	0	1	2	0	0	2	1	0	6
BEECH	200CBEECH	0	0	2	0	0	0	0	0	2
BEECH	35C33	0	0	0	0	0	0	0	1	1
BEECH	58	0	1	1	0	0	0	2	0	4
BEECH	76	0	0	0	0	0	0	0	1	1
BEECH	95B55	0	0	1	0	0	0	0	0	1
BEECH	A100	0	0	0	0	1	0	0	0	1
BEECH	B100	0	0	0	0	0	0	1	0	1
BEECH	B200C	0	0	1	0	0	0	0	0	1
BEECH	F33A	0	1	0	0	0	0	0	0	1
BEECH	F90	0	1	0	0	0	0	0	0	1
BELL	206B	0	4	0	0	4	3	1	0	12
BELL	206B3	0	3	1	0	0	2	3	0	9
BELL	206L	0	0	0	0	2	0	1	0	3
BELL	206L1	0	1	1	0	2	5	3	0	12
BELL	206L3	0	4	1	0	0	3	6	0	14
BELL	206L4	0	0	0	0	0	0	1	0	1
BELL	212	0	1	2	0	1	0	1	0	5
BELL	214ST	0	8	4	0	0	5	0	0	17
BELL	407	0	0	0	0	0	3	0	0	3
BELL	412	0	18	8	0	13	5	12	0	56
BOEING	234	0	0	0	0	0	1	0	0	1
BOLKMS	BK117A4	0	0	0	0	0	0	1	0	1
BOLKMS	BK117B1	0	1	0	0	0	0	1	0	2



AIRCRAFT MAKE	AIRCRAFT MODEL	SDR TOTALS BY FAA ATA SYSTEM CHAPTER								TOTAL
		11-18	21-29	30-38	45-49	51-57	61-67	71-79	80-85	
BOLKMS	BK117B2	0	1	1	0	0	0	1	0	3
BOLKMS	BO105C	0	0	0	0	0	1	1	0	2
BOLKMS	BO105S	0	2	3	0	0	9	3	0	17
CAMAIR	480	0	0	0	0	0	0	1	0	1
CESSNA	150M	0	0	0	0	0	0	1	0	1
CESSNA	152	0	0	0	0	1	0	0	0	1
CESSNA	172H	0	0	0	0	1	0	0	0	1
CESSNA	172L	0	0	0	0	0	0	0	1	1
CESSNA	182H	0	3	0	0	10	0	0	1	14
CESSNA	208	0	1	0	0	0	0	0	0	1
CESSNA	208B	0	1	0	0	0	0	0	0	1
CESSNA	210L	0	0	2	0	0	0	0	0	2
CESSNA	210M	0	0	0	0	0	0	0	1	1
CESSNA	310Q	0	0	1	0	0	0	0	0	1
CESSNA	310R	0	1	0	0	0	0	0	0	1
CESSNA	337	0	0	0	0	0	0	1	0	1
CESSNA	402C	0	1	0	0	0	0	0	0	1
CESSNA	421C	0	1	0	0	0	0	0	0	1
CESSNA	441	0	1	0	0	0	0	0	0	1
CESSNA	500CESSNA	0	0	1	0	0	0	0	0	1
CESSNA	550	0	2	2	0	0	0	0	0	4
CESSNA	U206F	0	0	0	0	0	0	1	0	1
CNDAIR	CL6012A12	0	0	0	0	0	0	1	0	1
DHAV	DHC6300	0	0	0	0	1	0	0	0	1
EMB	EMB110P1	0	0	0	0	0	0	1	0	1
FLEET	FLEET80	0	0	0	0	1	0	0	0	1
GULSTM	690A	0	0	1	0	0	0	0	0	1

AIRCRAFT MAKE	AIRCRAFT MODEL	SDR TOTALS BY FAA ATA SYSTEM CHAPTER								TOTAL
		11-18	21-29	30-38	45-49	51-57	61-67	71-79	80-85	
GULSTM	690D	0	0	0	0	1	0	0	0	1
HUGHES	269C	0	0	0	0	0	1	0	0	1
HUGHES	369D	0	0	2	0	0	1	1	0	4
HUGHES	369HS	0	0	0	0	0	0	1	0	1
MTSBSI	MU2B30	0	0	1	0	0	0	0	0	1
PARTEN	P68B	0	0	0	0	0	0	1	0	1
PIPER	PA28R201	0	0	1	0	0	0	0	0	1
PIPER	PA31	0	0	0	0	1	0	0	0	1
PIPER	PA31325	0	0	0	0	0	0	0	1	1
PIPER	PA31350	0	3	5	0	2	1	6	3	20
SKRSKY	S76	0	0	1	0	0	1	0	0	2
SKRSKY	S76A	0	7	7	0	0	5	1	0	20
SNIAS	AS350B	0	4	0	0	1	6	4	0	15
SNIAS	AS350B1	0	0	0	0	0	1	0	0	1
SNIAS	AS350B2	0	0	0	0	0	3	2	0	5
SNIAS	AS350BA	0	0	0	0	0	4	0	0	4
SUKHOI	SU26M	0	1	0	0	0	0	0	0	1
<b>TOTALS</b>		<b>0</b>	<b>73</b>	<b>53</b>	<b>0</b>	<b>42</b>	<b>65</b>	<b>61</b>	<b>9</b>	<b>303</b>

(End of AIR CARRIER SUMMARY INDEX by OPERATOR Report)

# JOINT AIRCRAFT SYSTEM/COMPONENT CODE TABLE

## PREFACE

The Joint Aircraft System/Component (JASC) Code Table is a modified version of the Air Transport Association of America (ATA), Specification 100 code. It was developed by the Federal Aviation Administration's (FAA), Aviation Data Systems Branch (AFS-620). Technical support was provided by the Galaxy Scientific Corporation, and various representatives of the air carrier and general aviation community.

Over the past four years, the JASC format of the ATA Spec 100 code has gained widespread industry acceptance. In a harmonized effort, the FAA's counterparts in Australia and Canada have adopted the JASC code with only a few exceptions. Some Canadian aircraft manufacturers have also recently adopted this new standard.

This code table is constructed by using the new JASC four (4) digit code, along with an abbreviated code title. The abbreviated titles have been modified in some cases to clarify the intended use of the accompanying code. This table can be used as a quick reference chart, to assist in the coding and review of aircraft structures or systems data (i.e., Service Difficulty Report (SDR), Accident/Incident Report).

The current coding scheme used in the JASC code was introduced in May 1991, for the technical classification of SDR's. Its predecessor, the FAA aircraft system/component code, was a similar but more complex eight-digit code which was developed over 25 years ago. It was constructed around the computer technology of that period. It consisted of a four digit numerical code plus a four alpha character code to make data retrieval possible. Since that time, computer technology has advanced many fold. Reducing the code from eight to four characters simplifies coding, and in some cases, makes JASC coding match the ATA Specification 100 first three digits, which are used to identify aircraft systems. The ATA code does not reference the fourth digit, so it is free to be used for identifying components.

The JASC code aircraft structural section has increased due to problems inherent with aging aircraft. As an example, FAA code 5301 SXBD was expanded to 20 items due to the high rate of reporting in this area (8021 structural reports were received in 1989). In some instances, there was very little reporting and codes were combined into other systems if the safety impact was not significant. The overall reduction in codes has been from 568 FAA codes to 488 JASC codes, with the significant increase being in the structural area as stated earlier.

The JASC code divides the engine section into two major code groups to separate the turbine and reciprocating engines. The codes for the turbine engines are in JASC Chapter 72, Turbine/Turboprop Engine. The codes for the reciprocating engines are now exclusively found in JASC Chapter 85, Reciprocating Engine.

The other major deviation from ATA Spec 100 is in ATA section 2730, specifically involves the stall warning system. Early technology (primarily on smaller aircraft) directly linked the sensing of flight attitude to one of the components which furnished the means of manually controlling the flight attitude characteristics (elevator). Today, most large transport category aircraft utilize electronic units to sense the change in the environmental condition called stall, and use the data to influence navigation. ATA section 3410, Flight Environment Data, includes high speed warning in its code definition. Stall warning (low speed) is the reciprocal term of high speed warning, so its filing under the same code appears more logical. Thus, with the JASC code it was decided to move the stall warning system to Chapter 34 under the separate code JASC code 3418, Stall Warning System.

The FAA is continuing to pursue worldwide involvement from operators and manufacturers in addressing the need for international standardization of aircraft system/component codes. The ultimate goal is to develop a universal aircraft/component numbering standard which can be used in the manufacturer's maintenance manual, wiring diagram manual, system manuals and illustrated parts catalog. This harmonized standard must be a usable standard for the aircraft manufacturers, air carrier operators and the general aviation community.

We welcome comments and feedback regarding the possible forming of working groups to achieve this long range consideration of possibly harmonizing the ATA Specification 100 code and the JASC code. Comments may be directed to the FAA, Aviation Data Sytem Branch, AFS-620, P.O. Box 25082, Oklahoma City, OK 73125.

# JOINT AIRCRAFT SYSTEM/COMPONENT CODE TABLE

## JASC/ TITLE

### 11 PLACARDS AND MARKINGS

1100 PLACARDS AND MARKINGS

### 12 SERVICING

1210 FUEL SERVICING  
1220 OIL SERVICING  
1230 HYDRAULIC FLUID SERVICING  
1240 COOLANT SERVICING

### 18 HELICOPTER VIBRATION

1800 HELICOPTER VIB/NOISE ANALYSIS  
1810 HELICOPTER VIBRATION ANALYSIS  
1820 HELICOPTER NOISE ANALYSIS

### 21 AIR CONDITIONING

2100 AIR CONDITIONING SYSTEM  
2110 CABIN COMPRESSOR SYSTEM  
2120 AIR DISTRIBUTION SYSTEM  
2121 AIR DISTRIBUTION FAN  
2130 CABIN PRESSURE CONTROL SYSTEM  
2131 CABIN PRESSURE CONTROLLER  
2132 CABIN PRESSURE INDICATOR  
2133 PRESSURE REGUL/OUTFLOW VALVE  
2134 CABIN PRESSURE SENSOR  
2140 HEATING SYSTEM  
2150 CABIN COOLING SYSTEM  
2160 CABIN TEMPERATURE CONTROL SYSTEM  
2161 CABIN TEMPERATURE CONTROLLER  
2162 CABIN TEMPERATURE INDICATOR  
2163 CABIN TEMPERATURE SENSOR  
2170 HUMIDITY CONTROL SYSTEM

### 22 AUTO FLIGHT

2200 AUTO FLIGHT SYSTEM  
2210 AUTOPILOT SYSTEM  
2211 AUTOPILOT COMPUTER  
2212 ALTITUDE CONTROLLER  
2213 FLIGHT CONTROLLER  
2214 AUTOPILOT TRIM INDICATOR  
2215 AUTOPILOT MAIN SERVO  
2216 AUTOPILOT TRIM SERVO  
2220 SPEED-ATTITUDE CORRECT. SYSTEM  
2230 AUTO THROTTLE SYSTEM  
2250 AERODYNAMIC LOAD ALLEVIATING

### 23 COMMUNICATIONS

2300 COMMUNICATIONS SYSTEM  
2310 HF COMMUNICATION SYSTEM  
2311 UHF COMMUNICATION SYSTEM  
2312 VHF COMMUNICATION SYSTEM  
2320 DATA TRANSMISSION AUTO CALL  
2330 ENTERTAINMENT SYSTEM  
2340 INTERPHONE & PA SYSTEM  
2350 AUDIO INTEGRATING SYSTEM  
2360 STATIC DISCHARGE SYSTEM  
2370 AUDIO/VIDEO MONITORING

### 24 ELECTRICAL POWER

2400 ELECTRICAL POWER SYSTEM  
2410 ALTERNATOR-GENERATOR DRIVE  
2420 AC GENERATION SYSTEM  
2421 AC GENERATOR-ALTERNATOR  
2422 AC INVERTER  
2423 PHASE ADAPTER

### 24 ELECTRICAL POWER CONT'D

2424 AC REGULATOR  
2425 AC INDICATING SYSTEM  
2430 DC GENERATING SYSTEM  
2431 BATTERY OVERHEAT WARN. SYSTEM  
2432 BATTERY/CHARGER SYSTEM  
2433 DC RECTIFIER-CONVERTER  
2434 DC GENERATOR-ALTERNATOR  
2435 STARTER-GENERATOR  
2436 DC REGULATOR  
2437 DC INDICATING SYSTEM  
2440 EXTERNAL POWER SYSTEM  
2450 AC POWER DISTRIBUTION SYSTEM  
2460 DC POWER/DISTRIBUTION SYSTEM

### 25 EQUIPMENT/FURNISHINGS

2500 CABIN EQUIPMENT/FURNISHINGS  
2510 FLIGHT COMPARTMENT EQUIPMENT  
2520 PASSENGER COMPARTMENT EQUIPMENT  
2530 BUFFET/GALLEYS  
2540 LAVATORIES  
2550 CARGO COMPARTMENTS  
2551 AGRICULTURAL SPRAY SYSTEM  
2560 EMERGENCY EQUIPMENT  
2561 LIFE JACKET  
2562 EMERGENCY LOCATOR BEACON  
2563 PARACHUTE  
2564 LIFE RAFT  
2565 ESCAPE SLIDE  
2570 ACCESSORY COMPARTMENT  
2571 BATTERY BOX STRUCTURE  
2572 ELECTRONIC SHELF SECTION

**26 FIRE PROTECTION**

2600 FIRE PROTECTION SYSTEM  
2610 DETECTION SYSTEM  
2611 SMOKE DETECTION  
2612 FIRE DETECTION  
2613 OVERHEAT DETECTION  
2620 EXTINGUISHING SYSTEM  
2621 FIRE BOTTLE, FIXED  
2622 FIRE BOTTLE, PORTABLE

**27 FLIGHT CONTROLS**

2700 FLIGHT CONTROL SYSTEM  
2701 CONTROL COLUMN SECTION  
2710 AILERON CONTROL SYSTEM  
2711 AILERON TAB CONTROL SYSTEM  
2720 RUDDER CONTROL SYSTEM  
2721 RUDDER TAB CONTROL SYSTEM  
2722 RUDDER ACTUATOR  
2730 ELEVATOR CONTROL SYSTEM  
2731 ELEVATOR TAB CONTROL SYSTEM  
2740 STABILIZER CONTROL SYSTEM  
2741 STABILIZER POSITION INDICATING  
2742 STABILIZER ACTUATOR  
2750 TE FLAP CONTROL SYSTEM  
2751 TE FLAP POSITION IND. SYSTEM  
2752 TE FLAP ACTUATOR  
2760 DRAG CONTROL SYSTEM  
2761 DRAG CONTROL ACTUATOR  
2770 GUST LOCK/DAMPER SYSTEM  
2780 LE FLAP CONTROL SYSTEM  
2781 LE FLAP POSITION IND. SYSTEM  
2782 LE FLAP ACTUATOR

**28 FUEL**

2800 AIRCRAFT FUEL SYSTEM  
2810 FUEL STORAGE  
2820 ACFT FUEL DISTRIB. SYSTEM  
2821 ACFT FUEL FILTER/STRAINER  
2822 FUEL BOOST PUMP  
2823 FUEL SELECTOR/SHUTOFF VALVE  
2824 FUEL TRANSFER VALVE  
2830 FUEL DUMP SYSTEM  
2840 ACFT FUEL INDICATING  
2841 FUEL QUANTITY INDICATOR  
2842 FUEL QUANTITY SENSOR  
2843 FUEL TEMPERATURE INDICATING  
2844 FUEL PRESSURE INDICATOR

**29 HYDRAULIC POWER**

2900 HYDRAULIC POWER SYSTEM  
2910 HYDRAULIC, MAIN SYSTEM  
2911 HYDRAULIC POWER-ACCUMULATOR-MAIN  
2912 HYDRAULIC FILTER-MAIN SYSTEM  
2913 HYDRAULIC PUMP. ELECT-ENG.-MAIN  
2914 HYDRAULIC HANDPUMP-MAIN  
2915 HYDRAULIC PRESSURE RELIEF VLV-MAIN  
2916 HYDRAULIC RESERVOIR-MAIN  
2917 HYDRAULIC PRESSURE REGULATOR-MAIN  
2920 HYDRAULIC, AUXILIARY SYSTEM  
2921 HYDRAULIC ACCUMULATOR-AUXILIARY  
2922 HYDRAULIC FILTER-AUXILIARY  
2923 HYDRAULIC PUMP-AUXILIARY  
2925 HYDRAULIC PRESSURE RELIEF-AUXILIARY  
2926 HYDRAULIC RESERVOIR-AUXILIARY  
2927 HYDRAULIC PRESSURE REGULATOR-AUX.  
2930 HYDRAULIC SYSTEM INDICATING  
2931 HYDRAULIC PRESSURE INDICATOR  
2932 HYDRAULIC PRESSURE SENSOR  
2933 HYDRAULIC QUANTITY INDICATOR  
2934 HYDRAULIC QUANTITY SENSOR

**30 ICE AND RAIN PROTECTION**

3000 ICE/RAIN PROTECTION SYSTEM  
3010 AIRFOIL ANTI/DE-ICE SYSTEM  
3020 AIR INTAKE ANTI/DE-ICE SYSTEM  
3030 PITOT/STATIC ANTI-ICE SYSTEM  
3040 WINDSHIELD/DOOR RAIN/ICE REMOVAL  
3050 ANTENNA/RADOME ANTI-ICE/DE-ICE SYSTEM  
3060 PROP/ROTOR ANTI-ICE/DE-ICE SYSTEM  
3070 WATER LINE ANTI-ICE SYSTEM  
3080 ICE DETECTION

**31 INSTRUMENTS**

3100 INDICATING/RECORDING SYSTEM  
3110 INSTRUMENT PANEL  
3120 INDEPENDENT INSTRUMENTS (CLOCK, ETC.)  
3130 DATA RECORDERS (FLT/MAINT)  
3140 CENTRAL COMPUTERS (EICAS)  
3150 CENTRAL WARNING  
3160 CENTRAL DISPLAY  
3170 AUTOMATIC DATA

**32 LANDING GEAR**

3200 LANDING GEAR SYSTEM  
3201 LANDING GEAR/WHEEL FAIRING  
3210 MAIN LANDING GEAR  
3211 MAIN LANDING GEAR ATTACH SECTION  
3212 EMERGENCY FLOTATION SECTION  
3213 MAIN LANDING GEAR STRUT/AXLE/TRUCK  
3220 NOSE/TAIL LANDING GEAR  
3221 NOSE/TAIL LANDING GEAR ATTACH SECTION  
3222 NOSE/TAIL LANDING GEAR STRUT/AXLE  
3230 LANDING GEAR RETRACT/EXT. SYSTEM  
3231 LANDING GEAR DOOR RETRACT SECTION  
3232 LANDING GEAR DOOR ACTUATOR  
3233 LANDING GEAR ACTUATOR  
3234 LANDING GEAR SELECTOR  
3240 LANDING GEAR BRAKE SYSTEM  
3241 BRAKE ANTI-SKID SECTION  
3242 BRAKE  
3243 MASTER CYL/BRAKE VALVE  
3244 TIRE  
3245 TIRE TUBE  
3246 WHEEL/SKI/FLOAT  
3250 LANDING GEAR STEERING SYSTEM  
3251 STEERING UNIT  
3252 SHIMMY DAMPER  
3260 LANDING GEAR POSITION & WARNING  
3270 AUXILIARY GEAR (TAIL SKID)

**33 LIGHTS**

3300 LIGHTING SYSTEM  
3310 FLIGHT COMPARTMENT LIGHTING  
3320 PASSENGER COMPARTMENT LIGHTING  
3330 CARGO COMPARTMENT LIGHTING  
3340 EXTERIOR LIGHTING  
3350 EMERGENCY LIGHTING

**34 NAVIGATION**

3400 NAVIGATION SYSTEM  
3410 FLIGHT ENVIRONMENT DATA  
3411 PITOT/STATIC SYSTEM  
3412 OUTSIDE AIR TEMP. IND./SENSOR  
3413 RATE OF CLIMB INDICATOR  
3414 AIRSPEED/MACH INDICATING  
3415 HIGH SPEED WARNING  
3416 ALTIMETER, BAROMETRIC/ENCODER

### **34 NAVIGATION CONT'D**

3417 AIR DATA COMPUTER  
3418 STALL WARNING SYSTEM  
3420 ATTITUDE AND DIRECTION DATA SYSTEM  
3421 ATTITUDE GYRO & IND. SYSTEM  
3422 DIRECTIONAL GYRO & IND. SYSTEM  
3423 MAGNETIC COMPASS  
3424 TURN & BANK/RATE OF TURN INDICATOR  
3425 INTEGRATED FLT. DIRECTOR SYSTEM  
3430 LANDING & TAXI AIDS  
3431 LOCALIZER/VOR SYSTEM  
3432 GLIDE SLOPE SYSTEM  
3433 MICROWAVE LANDING SYSTEM  
3434 MARKER BEACON SYSTEM  
3435 HEADS UP DISPLAY SYSTEM  
3436 WIND SHEAR DETECTION SYSTEM  
3440 INDEPENDENT POS. DETERMINING SYSTEM  
3441 INERTIAL GUIDANCE SYSTEM  
3442 WEATHER RADAR SYSTEM  
3443 DOPPLER SYSTEM  
3444 GROUND PROXIMITY SYSTEM  
3445 AIR COLLISION AVOIDANCE SYSTEM (TCAS)  
3446 NON RADAR WEATHER SYSTEM  
3450 DEPENDENT POSITION DETERMINING SYSTEM  
3451 DME/TACAN SYSTEM  
3452 ATC TRANSPONDER SYSTEM  
3453 LORAN SYSTEM  
3454 VOR SYSTEM  
3455 ADF SYSTEM  
3456 OMEGA NAVIGATION SYSTEM  
3457 GLOBAL POSITIONING SYSTEM  
3460 FLIGHT MANAGE. COMPUTING SYSTEM

### **35 OXYGEN**

3500 OXYGEN SYSTEM  
3510 CREW OXYGEN SYSTEM  
3520 PASSENGER OXYGEN SYSTEM  
3530 PORTABLE OXYGEN SYSTEM

### **36 PNEUMATIC**

3600 PNEUMATIC SYSTEM  
3610 PNEUMATIC DISTRIBUTION SYSTEM  
3620 PNEUMATIC INDICATING SYSTEM

### **37 VACUUM**

3700 VACUUM SYSTEM  
3710 VACUUM DISTRIBUTION SYSTEM  
3720 VACUUM INDICATING SYSTEM

### **38 WATER/WASTE**

3800 WATER & WASTE SYSTEM  
3810 POTABLE WATER SYSTEM  
3820 WASH WATER SYSTEM  
3830 WASTE DISPOSAL SYSTEM  
3840 AIR SUPPLY (WATER PRESS. SYSTEM)

### **45 CENTRAL MAINT. SYSTEM**

4500 CENTRAL MAINT. COMPUTER

### **49 AIRBORNE AUXILIARY POWER**

4900 AIRBORNE APU SYSTEM  
4910 APU COWLING/CONTAINMENT  
4920 APU CORE ENGINE  
4930 APU ENGINE FUEL & CONTROL  
4940 APU START/IGNITION SYSTEM  
4950 APU BLEED AIR SYSTEM  
4960 APU CONTROLS  
4970 APU INDICATING SYSTEM  
4980 APU EXHAUST SYSTEM  
4990 APU OIL SYSTEM

### **51 STANDARD PRACTICES/STRUCTURES**

5100 STANDARD PRACTICES/STRUCTURES  
5101 AIRCRAFT STRUCTURES  
5102 BALLOON REPORTS

### **52 DOORS**

5200 DOORS  
5210 PASSENGER/CREW DOORS  
5220 EMERGENCY EXIT  
5230 CARGO/BAGGAGE DOORS  
5240 SERVICE DOORS  
5241 GALLEY DOORS  
5242 E/E COMPARTMENT DOORS  
5243 HYDRAULIC COMPARTMENT DOORS  
5244 ACCESSORY COMPARTMENT DOORS  
5245 AIR CONDITIONING COMPART. DOORS  
5246 FLUID SERVICE DOORS

5247 APU DOORS  
5248 TAIL CONE DOORS  
5250 FIXED INNER DOORS  
5260 ENTRANCE STAIRS  
5270 DOOR WARNING SYSTEM  
5280 LANDING GEAR DOORS

### **53 FUSELAGE**

5300 FUSELAGE STRUCTURE (GENERAL)  
5301 AERIAL TOW EQUIPMENT  
5302 ROTORCRAFT TAIL BOOM  
5310 FUSELAGE MAIN STRUCTURE  
5311 FUSELAGE MAIN FRAME  
5312 FUSELAGE MAIN BULKHEAD  
5313 FUSELAGE MAIN LONGERON/STRINGER  
5314 FUSELAGE MAIN KEEL  
5315 FUSELAGE MAIN FLOOR BEAM  
5320 FUSELAGE MISCELLANEOUS STRUCTURE  
5321 FUSELAGE FLOOR PANEL  
5322 FUSELAGE INTERNAL MOUNT STRUCTURE  
5323 FUSELAGE INTERNAL STAIRS  
5324 FUSELAGE FIXED PARTITIONS  
5330 FUSELAGE MAIN PLATE/SKIN  
5340 FUSELAGE MAIN ATTACH FITTINGS  
5341 WING ATTACH FITTINGS (ON FUSELAGE)  
5342 STABILIZER ATTACH FITTINGS  
5343 LANDING GEAR ATTACH FITTINGS  
5344 FUSELAGE DOOR HINGES  
5345 FUSELAGE EQUIPMENT ATTACH FITTINGS  
5346 POWERPLANT ATTACH FITTINGS  
5347 SEAT/CARGO ATTACH FITTINGS  
5350 FUSELAGE AERODYNAMIC FAIRINGS

### **54 NACELLES/PYLONS**

5400 NACELLE/PYLON STRUCTURE  
5410 MAIN FRAME (ON NACELLE/PYLON)  
5411 FRAME/SPAR/RIB(NACELLE/PYLON)  
5412 BULKHEAD/FIREWALL (NAC/PYLON)  
5413 LONGERON/STRINGER (NAC/PYLON)  
5414 PLATE SKIN (NAC/PYLONS)  
5415 ATTACH FITTINGS (NAC/PYLON)

### **55 STABILIZERS**

5500 EMPENNAGE STRUCTURE  
5510 HORIZONTAL STABILIZER STRUCTURE  
5511 HORIZONTAL STABILIZER SPAR/RIB  
5512 HORIZONTAL STABILIZER PLATE/SKIN  
5513 HORIZONTAL STABILIZER TAB STRUCTURE  
5520 ELEVATOR STRUCTURE

**55 STABILIZERS CONT'D**

5521 ELEVATOR SPAR/RIB STRUCTURE  
5522 ELEVATOR PLATES/SKIN STRUCTURE  
5523 ELEVATOR TAB STRUCTURE  
5530 VERTICAL STABILIZER STRUCTURE  
5531 VERTICAL STABILIZER SPAR/RIB STRUCTURE  
5532 VERTICAL STABILIZER PLATES/SKIN  
5533 VENTRAL STRUCTURE (ON VERT. STAB)  
5540 RUDDER STRUCTURE  
5541 RUDDER SPAR/RIB STRUCTURE  
5542 RUDDER PLATE/SKIN STRUCTURE  
5543 RUDDER TAB STRUCTURE  
5550 EMPENNAGE FLT. CONT. ATTACH FITTING  
5551 HORIZONTAL STABILIZER ATTACH FITTING  
5552 ELEVATOR/TAB ATTACH FITTINGS  
5553 VERT. STAB. ATTACH FITTINGS  
5554 RUDDER/TAB ATTACH FITTINGS

**56 WINDOWS**

5600 WINDOW/WINDSHIELD SYSTEM  
5610 FLIGHT COMPARTMENT WINDOWS  
5620 PASSENGER COMPARTMENT WINDOWS  
5630 DOOR WINDOWS  
5640 INSPECTION WINDOWS

**57 WINGS**

5700 WING STRUCTURE  
5710 WING MAIN FRAME STRUCTURE  
5711 WING SPAR STRUCTURE  
5712 WING RIB STRUCTURE  
5713 WING LONGERON/STRINGER  
5714 WING CENTER BOX  
5720 WING MISCELLANEOUS STRUCTURE  
5730 WING PLATES/SKINS  
5740 WING ATTACH FITTINGS  
5741 WING, FUSELAGE ATTACH FITTINGS  
5742 WING, NAC/PYLON ATTACH FITTINGS  
5743 WING, LANDING GEAR ATTACH FITTINGS  
5744 CONTROL SURFACE ATTACH FITTINGS  
5750 WING CONTROL SURFACE STRUCTURE  
5751 AILERON STRUCTURE  
5752 AILERON TAB STRUCTURE  
5753 TE FLAP STRUCTURE  
5754 LEADING EDGE DEVICE STRUCTURE  
5755 SPOILER STRUCTURE

**61 PROPELLERS/PROPULSORS**

6100 PROPELLER SYSTEM  
6110 PROPELLER ASSEMBLY  
6111 PROPELLER BLADE SECTION  
6112 PROPELLER DE-ICE BOOT SECTION  
6113 PROPELLER SPINNER SECTION  
6114 PROPELLER HUB SECTION  
6120 PROPELLER CONTROL SYSTEM  
6121 PROPELLER SYNCHRONIZER SECTION  
6122 PROPELLER GOVERNOR  
6123 PROPELLER FEATHERING/REVERSING  
6130 PROPELLER BRAKING  
6140 PROPELLER INDICATING SYSTEM

**62 MAIN ROTOR**

6200 MAIN ROTOR SYSTEM  
6210 MAIN ROTOR BLADES  
6220 MAIN ROTOR HEAD  
6230 MAIN ROTOR MAST/SWASHPLATE  
6240 MAIN ROTOR INDICATING SYSTEM

**63 MAIN ROTOR DRIVE**

6300 MAIN ROTOR DRIVE SYSTEM  
6310 ENGINE/TRANSMISSION COUPLING  
6320 MAIN ROTOR GEARBOX  
6321 MAIN ROTOR BRAKE  
6322 ROTORCRAFT COOLING FAN SYSTEM  
6330 MAIN ROTOR TRANSMISSION MOUNT  
6340 ROTOR DRIVE INDICATING SYSTEM

**64 TAIL ROTOR**

6400 TAIL ROTOR SYSTEM  
6410 TAIL ROTOR BLADE  
6420 TAIL ROTOR HEAD  
6440 TAIL ROTOR INDICATING SYSTEM

**65 TAIL ROTOR DRIVE**

6500 TAIL ROTOR DRIVE SYSTEM  
6510 TAIL ROTOR DRIVE SHAFT  
6520 TAIL ROTOR GEARBOX  
6540 TAIL ROTOR DRIVE INDICATING SYSTEM

**67 ROTORS FLIGHT CONTROL**

6700 ROTORCRAFT FLIGHT CONTROL  
6710 MAIN ROTOR CONTROL  
6711 TILT ROTOR FLIGHT CONTROL  
6720 TAIL ROTOR CONTROL SYSTEM  
6730 ROTORCRAFT SERVO SYSTEM

**71 POWERPLANT**

7100 POWERPLANT SYSTEM  
7110 ENGINE COWLING SYSTEM  
7111 COWL FLAP SYSTEM  
7112 ENGINE AIR BAFFLE SECTION  
7120 ENGINE MOUNT SECTION  
7130 ENGINE FIRESEALS  
7160 ENGINE AIR INTAKE SYSTEM  
7170 ENGINE DRAINS

**72 TURBINE/TURBOPROP ENGINE**

7200 ENGINE (TURBINE/TURBOPROP)  
7210 TURBINE ENGINE REDUCTION GEAR  
7220 TURBINE ENGINE AIR INLET SECTION  
7230 TURBINE ENGINE COMPRESSOR SECTION  
7240 TURBINE ENGINE COMBUSTION SECTION  
7250 TURBINE SECTION  
7260 TURBINE ENGINE ACCESSORY DRIVE  
7261 TURBINE ENGINE OIL SYSTEM  
7270 TURBINE ENGINE BYPASS SECTION

**73 ENGINE FUEL & CONTROL**

7300 ENGINE FUEL & CONTROL  
7310 ENGINE FUEL DISTRIBUTION  
7311 ENGINE FUEL-OIL COOLER  
7312 FUEL HEATER  
7313 FUEL INJECTOR NOZZLE  
7314 ENGINE FUEL PUMP  
7320 FUEL CONTROLLING SYSTEM  
7321 FUEL CONTROL/ELECTRONIC  
7322 FUEL CONTROL/CARBURETOR  
7323 TURBINE GOVERNOR  
7324 FUEL DIVIDER  
7330 ENGINE FUEL INDICATING SYSTEM  
7331 FUEL FLOW INDICATING  
7332 FUEL PRESSURE INDICATING  
7333 FUEL FLOW SENSOR  
7334 FUEL PRESSURE SENSOR



**74 IGNITION**

7400 IGNITION SYSTEM  
7410 IGNITION POWER SUPPLY  
7411 LOW TENSION COIL  
7412 EXCITER  
7413 INDUCTION VIBRATOR  
7414 MAGNETO/DISTRIBUTOR  
7420 IGNITION HARNESS (DISTRIBUTION)  
7421 SPARK PLUG/IGNITER  
7430 IGNITION SWITCHING

**75 AIR**

7500 ENGINE BLEED AIR SYSTEM  
7510 ENGINE ANTI-ICING SYSTEM  
7520 ENGINE COOLING SYSTEM  
7530 COMPRESSOR BLEED CONTROL  
7531 COMPRESSOR BLEED GOVERNOR  
7532 COMPRESSOR BLEED VALVE  
7540 BLEED AIR INDICATING SYSTEM

**76 ENGINE CONTROLS**

7600 ENGINE CONTROLS  
7601 ENGINE SYNCHRONIZING  
7602 MIXTURE CONTROL  
7603 POWER LEVER  
7620 ENGINE EMERGENCY SHUTDOWN SYSTEM

**77 ENGINE INDICATING**

7700 ENGINE INDICATING SYSTEM  
7710 POWER INDICATING SYSTEM  
7711 ENGINE PRESSURE RATIO (EPR)  
7712 ENGINE BMEP/TORQUE INDICATING  
7713 MANIFOLD PRESSURE (MP) INDICATING  
7714 ENGINE RPM INDICATING SYSTEM  
7720 ENGINE TEMP. INDICATING SYSTEM  
7721 CYLINDER HEAD TEMP (CHT) INDICATING  
7722 ENG. EGT/TIT INDICATING SYSTEM  
7730 ENGINE IGNITION ANALYZER SYSTEM  
7731 ENGINE IGNITION ANALYZER  
7732 ENGINE VIBRATION ANALYZER  
7740 ENGINE INTEGRATED INSTRUMENT SYSTEM

**78 ENGINE EXHAUST**

7800 ENGINE EXHAUST SYSTEM  
7810 ENGINE COLLECTOR/TAILOPIPE/NOZZLE  
7820 ENGINE NOISE SUPPRESSOR  
7830 THRUST REVERSER

**79 ENGINE OIL**

7900 ENGINE OIL SYSTEM (AIRFRAME)  
7910 ENGINE OIL STORAGE (AIRFRAME)  
7920 ENGINE OIL DISTRIBUTION (AIRFRAME)  
7921 ENGINE OIL COOLER  
7922 ENGINE OIL TEMP. REGULATOR  
7923 OIL SHUTOFF VALVE  
7930 ENGINE OIL INDICATING SYSTEM  
7931 ENGINE OIL PRESSURE  
7932 ENGINE OIL QUANTITY  
7933 ENGINE OIL TEMPERATURE

**80 STARTING**

8000 ENGINE STARTING SYSTEM  
8010 ENGINE CRANKING  
8011 ENGINE STARTER  
8012 ENGINE START VALVES/CONTROLS

**81 TURBOCHARGING**

8100 EXHAUST TURBINE SYSTEM (RECIP)  
8110 POWER RECOVERY TURBINE (RECIP)  
8120 EXHAUST TURBOCHARGER

**82 WATER INJECTION**

8200 WATER INJECTION SYSTEM

**83 ACCESSORY GEARBOXES**

8300 ACCESSORY GEARBOXES

**85 RECIPROCATING ENGINE**

8500 ENGINE (RECIPROCATING)  
8510 RECIPROCATING ENGINE FRONT SECTION  
8520 RECIPROCATING ENGINE POWER SECTION

8530 RECIPROCATING ENGINE CYLINDER SECTION  
8540 RECIPROCATING ENGINE REAR SECTION  
8550 RECIPROCATING ENGINE OIL SYSTEM

## ***MECHANICS CREED***

UPON MY HONOR I swear that I shall hold in sacred trust the rights and privileges conferred upon me as a certified mechanic. Knowing full well that the safety and lives of others are dependent upon my skill and judgment, I shall never knowingly subject others to risks which I would not be willing to assume for myself, or for those dear to me.

IN DISCHARGING this trust, I pledge myself never to undertake work or approve work which I feel to be beyond the limits of my knowledge; nor shall I allow any non-certificated superior to persuade me to approve aircraft or equipment as airworthy against my better judgment; nor shall I permit my judgment to be influenced by money or other personal gain; nor shall I pass as airworthy aircraft or equipment about which I am in doubt, either as a result of direct inspection or uncertainty regarding the ability of others who have worked on it to accomplish their work satisfactorily.

I REALIZE the grave responsibility which is mine as a certified airman, to exercise my judgment on the airworthiness of aircraft and equipment. I, therefore, pledge unyielding adherence to these precepts for the advancement of aviation and for the dignity of my vocation.